Usenet Newsgroup Archive: rec.radio.amateur.homebrew

2013

These Usenet messages were preserved as a plain-text archive. This PDF was generated by Digital Library of Amateur Radio & Communications from the source text file in 2026.

Date span: 2013-01-01 through 2013-06-17

Source text: rec.radio.amateur.homebrew.txt

Source item: https://archive.org/details/usenet-rec

Messages included in this PDF: 177

Messages are presented chronologically by archived date.

Binary or encoded payloads are not printed as blocks of encoded text; a placeholder appears where such material was detected. The original source text is unchanged.

1. Crossposting Permitted to rec.radio.amateur.moderated

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-01 07:00:03 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/moderated/crossposting-1-1357023601@panix.com>
Source record: 224
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.amateur.space,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/moderated/crossposting
Revision: 1.2 2011/11/02 04:08:53
Posting-Frequency: posted twice monthly
URL: http://www.panix.com/~rram/usenet/rram/index.html

Changes followed by "|".

After a 30-day public discussion and feedback period to gauge reader
opinions in March of 2009:

http://groups.google.com/group/rec.radio.amateur.moderated/browse_thread/thread/d7d337db35
f23326

the rec.radio.amateur.moderated Moderation Team had decided to consider |
amending its charter, and permit limited simultaneous crossposting to
rec.radio.amateur.moderated and one other unmoderated
amateur-radio-related discussion newsgroup. After a successful trial |
period (90 days, through early July 2009), we decided to adopt this |
change permanently. |

Approved rec.radio.amateur.* newsgroups are those that are currently
listed in the latest version of the "List of Big Eight Newsgroups" which
is crossposted monthly to news.announce.newgroups, news.groups, and
news.lists.misc.

Approved alt.radio.amateur.* and alt.ham-radio.* newsgroups are those
that have been created consistent with the suggestions in "So You Want
to Create an Alt Newsgroup" at:

http://www.faqs.org/faqs/alt-creation-guide/

Approved regional hierarchy newsgroups are those that contain either
"radio.amateur" or "ham-radio" in their names, including
uk.radio.amateur and aus.radio.amateur.misc.

We will make every reasonable effort to keep our list of approved
newsgroups up-to-date. In case we have overlooked any, and a submission
is rejected in error as a result, the rejected submitter can E-mail us
at our administrative contact address (in the signature at the bottom of
this article, and the default Reply-To for the rejection message)
requesting that it be added, and that the article be approved. We may
still choose to reject articles crossposted to any alt.* newsgroup with
an inappropriate name, including obscene language, embedded
name-calling, or encouragement of unlawful conduct.
```

Please direct any comments, questions, or criticisms to
rec-radio-amateur-moderated-request@panix.com.

2. Gary Sokolich - 3816

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-01 10:43:44 UTC
From: Gary Sokolisch <SokolischSpeaks@moonbat.com>
Message-ID: <va87p0rpk3lv.4mb4lrrctio7.dlg@40tude.net>
Source record: 225

3816

W Gary Sokolich
801 Kings Road
Newport Beach, CA 92663-5715
(949) 650-5379
Local PD
949-644-3681

Residence:
1029 S Point View St
Los Angeles CA 90035
(310) 650-5379

and
5309 Victoria Ave., Los Angeles, CA, 90043

http://web.archive.org/web/20080821231423/http://www.tbpe.state.tx.us/da/da022808.htm

TEXAS BOARD OF PROFESSIONAL ENGINEERS
February 28, 2008 Board Meeting Disciplinary Actions

W. Gary Sokolich , Newport Beach, California 嗡碾 File B-29812 - It was alleged that. Sokolich unlawfully offered or attempted to practice engineering in Texas (...) Sokolich chose to end the proceedings by signing a Consent Order that was accepted by the Board to cease and desist from representing himself as an 嗡踝蕭Engineer嗡踝蕭 in Texas, from any and all representations that he can offer or perform engineering services and from the actual practice of engineering in Texas (...) Sokolich was also assessed a $1,360.00 administrative penalty.

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http://articles.latimes.com/1988-04-14/local/me-1922_1_ucla-researcher

A former UCLA employee has agreed to provide copies of his research to the school to settle a lawsuit the university filed against him in 1985, lawyers in the case said.

(...)

The University of California Board of Regents filed a $620,000 lawsuit against Sokolich, accusing him of taking research on the hearing capabilities of animals in June, 1982. Sokolich was dismissed by UCLA (...).

(...)

3. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-02 20:59:44 UTC
From: raypsi <RBorowiak@gmail.com>
Message-ID: <ca828343-66ae-451e-9302-6b3d1818bad0@googlegroups.com>
Source record: 226

Hey OM:

Here I thought this was the homebrew forum. The separate antenna is the easy way out,

I'd go with sum pin diode switching and a frequency sense circuit to switch the pin diodes. Or there are some good mercury wetted relays out there that can handle 100 watts.

On Thursday, December 6, 2012 4:15:39 AM UTC-5, David Griffith wrote:
> In order to connect a 2m/70cm radio and a 1.25m radio to a triband
>
> antenna (2m/1.25m/70cm), one requires a triplexer and diplexer. I'd
>
> like to cut down on the number and size of equipment to do this.
>
>
>
> I asked Comet about making a single compact unit that takes 2m/70cm on
>
> one port and 1.25m on the other. Mick Stwertnik told me that they
>
> designed and specced it out, but the cost would be a prohibitive
>
> $200-ish.
>
>
>
> So I investigated making my own and found Jim Tonne's Diplexer program.
>
> I asked him if he could extend the program to allow for designing
>
> triplexers. He had some hackish solution that sort of worked, but he
>
> doesn't know the math to do it correctly in the first place.
>
>
>
> Where should I go from here?
>
>
>
> --
>
> David Griffith
>
> davidmylastname@acm.org <--- Put my last name where it belongs

4. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-03 04:10:10 UTC
From: Channel Jumper <Channel.Jumper.b2ac8d9@radiobanter.com>
Message-ID: <Channel.Jumper.b2ac8d9@radiobanter.com>
Source record: 227

Maybe I am out of line here, but what you are asking is dumb.

Diplexers / Duplexers - what ever you want to call them are by nature
only about 50% efficient.
This means that you are throwing away half of your transmitted power and
half of your capiable receive in the diplexer.. DUMB!

Antenna manufacturers makes multiple tri band antenna's.
But in order to do it efficiently - you have to start with a resonant
antenna.

Because 70 cm and 1.25 CM are not multiples of wavelengths of 2 meters -
the best you can come up with is a compromise antenna...

The Diamond V2000 is a good example of this.
It does 2 meters, 70 cm and also 6 meters...

They do this by making the antenna into segments and placing capacitors
between the sections. The capacitors divides the antenna into
segments.

The RF looks down the array, till it finds the length it is looking for
and then it uses it, much like a Yagi Uda antenna for television...

The Diamond X 510 is another example - it uses 3 segments and has
excellent gain.... Problem is when you make a 2 meter antenna 18' long,
you end up with a top heavy vertical that snaps off when it is placed in
too much wind or when it gets old and brittle.

The antenna you are looking for was already designed a long time ago.
It is called a Discone antenna...

You make the vertical whip one length, you place at least two ground
radials underneath of a resonant length and put the radial system
directly under the antenna.

Diamond makes a excellent example.
No need to home brew a antenna in this day and age, except for
experimental purposes.

I get disgusted when I listen to the 2 meters and a couple of noob's
comes on and starts telling me how they are hams because they build a J
Pole antenna and are using walkie talkies and they are able to get into
the one local repeater and can talk to people because the repeater is
part of a linked repeater system - VOIP.....

If it was not for that repeater being linked, they would have no one to
talk to, and when the 10 years comes up for the license, their call sign

would be beside all the others from their VE test session that did not advance to General or higher, or did not put their license to good use while they held it.

--
Channel Jumper

5. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-03 08:52:58 UTC
From: Rob <nomail@example.com>
Message-ID: <slrnkeahna.jrc.nomail@xs8.xs4all.nl>
Source record: 228

Channel Jumper <Channel.Jumper.b2ac8d9@radiobanter.com> wrote:
>
> Maybe I am out of line here, but what you are asking is dumb.
>
> Diplexers / Duplexers - what ever you want to call them are by nature
> only about 50% efficient.
> This means that you are throwing away half of your transmitted power and
> half of your capiable receive in the diplexer.. DUMB!

It is not the diplexer that is dumb, it is your remark that is dumb.

6. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-03 15:20:16 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <1qednTX_gawsPHjNnZ2dnUVZ_qadnZ2d@earthlink.com>
Source record: 229

"Rob" <nomail@example.com> wrote in message
news:slrnkeahna.jrc.nomail@xs8.xs4all.nl...
> Channel Jumper <Channel.Jumper.b2ac8d9@radiobanter.com> wrote:
>>
>> Maybe I am out of line here, but what you are asking is dumb.
>>
>> Diplexers / Duplexers - what ever you want to call them are by nature
>> only about 50% efficient.
>> This means that you are throwing away half of your transmitted power and
>> half of your capiable receive in the diplexer.. DUMB!
>
> It is not the diplexer that is dumb, it is your remark that is dumb.

Most of CJ's remarks are that way. I doubt he has ever measured or checked on the splitters. I have and they are usually less than a half of a DB loss in them. I am thinking more like a .3 or so of a db loss, but it has been a while. Anyway from the best I could tell, it met the spec on the case of the splitter. That was with a HP 8924C test set.

7. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-03 15:22:00 UTC
From: Channel Jumper <Channel.Jumper.b2b7198@radiobanter.com>
Message-ID: <Channel.Jumper.b2b7198@radiobanter.com>
Source record: 230

'Rob[_8_ Wrote:
> ;800300']Channel Jumper Channel.Jumper.b2ac8d9@radiobanter.com wrote:-
>
> Maybe I am out of line here, but what you are asking is dumb.
>
> Diplexers / Duplexers - what ever you want to call them are by nature
> only about 50% efficient.
> This means that you are throwing away half of your transmitted power
> and
> half of your capiable receive in the diplexer.. DUMB!-
>
> It is not the diplexer that is dumb, it is your remark that is dumb.

Fine - but if you want to be right - you first have to prove why you
think that you are right.
A good example comes to mind.
In the 1970's Avanti came out with a antenna called the Moonraker IV
It was horizontally as well as vertically polarized.
Probably not a new idea, but one thing that you could get with that
antenna was a switch which allowed the use of one coax for two
antenna's.

Don't you think that it would be easier to use a Diamond X 510 antenna
and a 220 MHz and switch them up on the tower then it would be to use a
duplexer and try to use both at the same time.

220 is dead except for maybe in the city somewhere where someone has a
repeater... No manufacturer makes a 220 transceiver, except as a after
thought - the only one I see listed in the AES / HRO catalog has a
output of 1 watt.. I guess they use it to control a repeater site or
something like that.

200 Mhz offers the benefits of being a little more ground following -
like 2 meters, while being a little quieter - like 70 cm.. Rule of
thumb - noise is inverse the square of the frequency.. The higher in
frequency you go, the less noise you have to overcome. Probably the
reason why cell phones are 869 - 913 Mhz and public service is going to
800 Mhz and the T band.

--
Channel Jumper

8. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-04 22:26:21 UTC
From: Channel Jumper <Channel.Jumper.b2d1778@radiobanter.com>
Message-ID: <Channel.Jumper.b2d1778@radiobanter.com>
Source record: 231

Ralph Mowery;800305 Wrote:
> "Rob" nomail@example.com wrote in message
> news:slrnkeahna.jrc.nomail@xs8.xs4all.nl...-
> Channel Jumper Channel.Jumper.b2ac8d9@radiobanter.com wrote:-
>
> Maybe I am out of line here, but what you are asking is dumb.
>
> Diplexers / Duplexers - what ever you want to call them are by nature
> only about 50% efficient.
> This means that you are throwing away half of your transmitted power
> and
> half of your capiable receive in the diplexer.. DUMB!-
>
> It is not the diplexer that is dumb, it is your remark that is dumb.-
>
> Most of CJ's remarks are that way. I doubt he has ever measured or
> checked
> on the splitters. I have and they are usually less than a half of a DB
> loss
> in them. I am thinking more like a .3 or so of a db loss, but it has
> been a
> while. Anyway from the best I could tell, it met the spec on the case
> of
> the splitter. That was with a HP 8924C test set.

Now I know I am dealing with a CB'r

You cannot use a splitter to connect two antenna's together, and a
splitter is not a diplexer.
Even if all you are going to do is use the antenna's for receive only,
you will still run into problems..
If it was a television antenna - we use a con - joiner - it basically
isolates each antenna from each other, is real good for isolation to
prevent multipath, but again, you throw away half of the signal in the
Con - Joiner.

A splitter by nature is wasteful, a 2 way splitter should be unilateral,
each port receives 50% of the signal.
BUT
When you advance to a 3 way splitter, they are not unilateral.
Unless it is a expensive splitter, you usually end up with one port
having about 45% of the signal and the other two sharing the remaining
25% / 30% - between the two remaining ports.
This is the problem I deal with most often with reception issues.

The op buys a splitter, then figures that the television reduces the amount of received antenna power and so they buy a distribution amplifier and they figure that if they amplify the signal it will get better.
The problem being that you not only amplify the signal, you also amplify the noise, plus the amplifier makes some of its own noise.

So we steer them towards a mast head pre amplifier and it solves some problems but not all.
If the antenna is not aimed at the strongest part of the signal - we get little or not reception, or the reception we do get with digital signals is sometimes corrupted by radio waves arriving at the antenna at different times.

I've already explained dipole antenna's - which are a balanced antenna, or a vertical antenna.. So there isn't much of anything else to say except good bye on this one.

A Diplexer filters out the other frequency signal - and con - joins the two antenna's together on one feed line. Or makes believe to the receiver that there is two seperate antenna's, or keeps the rf out of the other side of the transceiver on a dual band transceiver.

--
Channel Jumper

9. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-05 08:39:02 UTC
From: Rob <nomail@example.com>
Message-ID: <slrnkefpl6.9ch.nomail@xs8.xs4all.nl>
Source record: 232

Channel Jumper <Channel.Jumper.b2d1778@radiobanter.com> wrote:
>
> Ralph Mowery;800305 Wrote:
>> "Rob" nomail@example.com wrote in message
>> news:slrnkeahna.jrc.nomail@xs8.xs4all.nl...-
>> Channel Jumper Channel.Jumper.b2ac8d9@radiobanter.com wrote:-
>>
>> Maybe I am out of line here, but what you are asking is dumb.
>>
>> Diplexers / Duplexers - what ever you want to call them are by nature
>> only about 50% efficient.
>> This means that you are throwing away half of your transmitted power
>> and
>> half of your capiable receive in the diplexer.. DUMB!-
>>
>> It is not the diplexer that is dumb, it is your remark that is dumb.-
>>
>> Most of CJ's remarks are that way. I doubt he has ever measured or
>> checked
>> on the splitters. I have and they are usually less than a half of a DB
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>> in them. I am thinking more like a .3 or so of a db loss, but it has
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>> while. Anyway from the best I could tell, it met the spec on the case
>> of
>> the splitter. That was with a HP 8924C test set.
>
> Now I know I am dealing with a CB'r
>
> You cannot use a splitter to connect two antenna's together, and a
> splitter is not a diplexer.
> Even if all you are going to do is use the antenna's for receive only,
> you will still run into problems..
> If it was a television antenna - we use a con - joiner - it basically
> isolates each antenna from each other, is real good for isolation to
> prevent multipath, but again, you throw away half of the signal in the
> Con - Joiner.
>
> A splitter by nature is wasteful, a 2 way splitter should be unilateral,
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> When you advance to a 3 way splitter, they are not unilateral.
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> having about 45% of the signal and the other two sharing the remaining

> 25% / 30% - between the two remaining ports.
> This is the problem I deal with most often with reception issues.
>
> The op buys a splitter, then figures that the television reduces the
> amount of received antenna power and so they buy a distribution
> amplifier and they figure that if they amplify the signal it will get
> better.
> The problem being that you not only amplify the signal, you also amplify
> the noise, plus the amplifier makes some of its own noise.
>
> So we steer them towards a mast head pre amplifier and it solves some
> problems but not all.
> If the antenna is not aimed at the strongest part of the signal - we get
> little or not reception, or the reception we do get with digital signals
> is sometimes corrupted by radio waves arriving at the antenna at
> different times.
>
> I've already explained dipole antenna's - which are a balanced antenna,
> or a vertical antenna.. So there isn't much of anything else to say
> except good bye on this one.
>
> A Diplexer filters out the other frequency signal - and con - joins the
> two antenna's together on one feed line. Or makes believe to the
> receiver that there is two seperate antenna's, or keeps the rf out of
> the other side of the transceiver on a dual band transceiver.

Why are you posting all this irrelevant crap?

When it is not clear to you that there is a big difference in operation
between a diplexer and a splitter, why bother?

10. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-05 15:50:57 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <quWdne8u3MZ_1nXNnZ2dnUVZ_u2dnZ2d@earthlink.com>
Source record: 233

"Rob" <nomail@example.com> wrote in message
news:slrnkefpl6.9ch.nomail@xs8.xs4all.nl...
>> A Diplexer filters out the other frequency signal - and con - joins the
>> two antenna's together on one feed line. Or makes believe to the
>> receiver that there is two seperate antenna's, or keeps the rf out of
>> the other side of the transceiver on a dual band transceiver.
>
> Why are you posting all this irrelevant crap?
>
> When it is not clear to you that there is a big difference in operation
> between a diplexer and a splitter, why bother?

I guess that I did add to the confusion by saying splitter when I should have said either duplexer or diplexer. It is already bad enough that Comet and maybe some other makers of diplexers are calling them duplexers.

I use Comet because that is one that I had handy and did check the loss in it with a HP 8924C. It has duplexer on it and meets the specs that are marked on it. I do not have them handy now, but think it was .2 db for one range of frequencies and .3 for the other.

I just loosely used splitter instead of saying duplexer/diplexer.
And Yes, I know the differance in all of the above. I had a First Classs Radio Telephone license back in 1972 at the age of 22 if that makes any differance.
Been an Extra class ham for over 10 years.
Repaired the CB radios for several years to about 1976 to pick up some spending money.

11. Seeking New FAQ/Intro Maintainers for rec.radio.amateur.*

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-07 07:05:02 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/recruitment-1-1357542300@panix.com>
Source record: 234
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/recruitment
Revision: 1.2 2009/11/25 14:41:01
Posting-Frequency: posted twice monthly
URL: http://www.faqs.org/faqs/radio/personal-intro/

Changes followed by "|".

The rec.radio.info newsgroup, first established in 1993, has been
recently revived by an active moderation team. We are currently seeking
suitable information, FAQ, and bulletin articles from the entire
rec.radio.* newsgroup hierarchy for simultaneous cross-posting to our
newsgroup.

We are seeking a replacement maintainer for the following information
bulletin formerly posted to rec.radio.amateur.* (and currently archived
at http://www.faqs.org/faqs/radio/personal-intro/ ):

radio/personal-intro
Subject: Guide to the rec.radio Newsgroups
Maintainer: jeffreyh@Hawaii.Edu (Jeffrey Herman)
Last Posted: 9 Nov 2001 06:18:17 GMT
Posting-Frequency: 15th of each month

One significant omission, requiring immediate updates, for this article |
is that it does not mention newer amateur radio newsgroups created since |
it was written, including: |

rec.radio.amateur.antenna |
rec.radio.amateur.boatanchors |
rec.radio.amateur.dx |
rec.radio.amateur.equipment |
rec.radio.amateur.homebrew |
rec.radio.amateur.moderated |
rec.radio.amateur.space |

We are willing to provide any technical support necessary to get this
article updated and automatically posted again at a regular interval.
This would include establishing contact with the original maintainer for
any necessary permissions. We would prefer to seek a new, dedicated
maintainer at this time, rather than start auto-posting the original
article ourselves.

For more information about our newsgroup, see:
```

http://www.panix.com/~rram/usenet/rri/index.html

Please direct any comments, questions, or criticisms to
rec-radio-info-request@panix.com.

12. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-07 07:31:27 UTC
From: coffelt2 <coffelt2@comcast.net>
Message-ID: <GL2dndFFE8NJ5HfNnZ2dnUVZ5qKdnZ2d@giganews.com>
Source record: 235

```
.> Been an Extra class ham for over 10 years.
> Repaired the CB radios for several years to about 1976 to pick up some
> spending money.

Hi, Ralph, am enjoying the give and take here! I also repaired CB radios
for extra meat on the table in the mid 1960's. Extra class very nearly
43 years! First class Radiotelephone licensed about the same time,
Don't let "em get to 'ya! You've "been there, done that"!

Hooooyah!

Old Chief Lynn, W7LTQ
```

13. Awards Central: All things awards season

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-07 14:17:32 UTC
From: Iran <tamarmadgecay@gmail.com>
Message-ID: <1b5bde35-9902-4f72-88f7-9ec88ba410fc@googlegroups.com>
Source record: 236

Awards Central: All things awards season http://adf.ly/2836760/rssfeeds.usatoday.com/~r/UsatodaycomMovies-TopStories/~3/-q2GHDel8HE/

14. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-07 19:25:21 UTC
From: Bruce Gordon <fast@btpost.net>
Message-ID: <fast-04AC0F.10252107012013@news.starband.net>
Source record: 237

In article <GL2dndFFE8NJ5HfNnZ2dnUVZ5qKdnZ2d@giganews.com>,
"coffelt2" <coffelt2@comcast.net> wrote:

> .> Been an Extra class ham for over 10 years.
> > Repaired the CB radios for several years to about 1976 to pick up some
> > spending money.
>
> Hi, Ralph, am enjoying the give and take here! I also repaired CB radios
> for extra meat on the table in the mid 1960's. Extra class very nearly
> 43 years! First class Radiotelephone licensed about the same time,
> Don't let "em get to 'ya! You've "been there, done that"!
>
> Hooooyah!
>
> Old Chief Lynn, W7LTQ

Hey Lynn, Long time no chat.....

--
Bruce in Alaska add path before the @ for email

15. After Christmas Book Sale

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-07 21:14:29 UTC
From: Henry <hsknoll@comcast.net>
Message-ID: <kcfdonnvl1@dont-email.me>
Source record: 238

I have the following books for sale with the prices I'm asking. All are in very good to excellent to like new. Some have my name in them. All have good bindings. All are plus postage from zip 55082. Payment in US$ in advance by check or money order. Sorry, no Paypal. When replying include your name and address so I can get postage.

Title Author Price

Advanced Class License
Manual 1985-1986 ARRL $3
Antenna Book 17th Ed 1994 ARRL $12
Antenna Book 18th Ed 1997 ARRL $15
Antenna Impedance Matching Caron-ARRL $20
Atlanticon 2002 Proceedings $5
Beam Antenna Hndbk 2nd Ed Orr $10
Call Book No. American 1991 $5
Call Book International 1995 $5
Circuit Design Using PC's Cuthbert $10
Electronic Eng Measurements
File Book 1965 Scrupski $5
Extra Class License Man1990 ARRL $4
FM & Repeater for the Radio
Amateur 1972 ARRL $4
From Spark to Space ARRL $10
Observe & Understand
the Sun 1976 Astro League $5
Operating Manual 5th Ed ARRL $8
Radio Freq Interference 1987ARRL $5
Satellite Exp's Hndbk 1990 ARRL $12
Television Interferencd Rem. Rand $5
The Mobile Manual for Radio
Amateur's 1960 ARRL $8
UHF/Microwave Exp's Man1990 ARRL $12
VHF Antenna Hndbk 1965 Kyle-73 Pub $5
VHF for the Radio Amateur Jones $8
VHF Hand Book Orr $8
Yagi Antenna Design 1986 Lawson $20

16. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-08 04:50:07 UTC
From: coffelt2 <coffelt2@comcast.net>
Message-ID: <SMidnbZlSsofOHbNnZ2dnUVZ5vWdnZ2d@giganews.com>
Source record: 239

```
>> .> Been an Extra class ham for over 10 years.
>> > Repaired the CB radios for several years to about 1976 to pick up some
>> > spending money.
>>
>> Hi, Ralph, am enjoying the give and take here! I also repaired CB radios
>> for extra meat on the table in the mid 1960's. Extra class very nearly
>> 43 years! First class Radiotelephone licensed about the same time,
>> Don't let "em get to 'ya! You've "been there, done that"!
>>
>> Hooooyah!
>>
>> Old Chief Lynn, W7LTQ
>
> Hey Lynn, Long time no chat.....
>
> --
> Bruce in Alaska add path before the @ for email

Good to hear 'ya, Bruce!
Wait'n for 10 meters to open...... any hope?

Old Chief Lynn
```

17. HOT VIDEOS AND PHOTOS FREE HERE TO U 53

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-08 09:27:57 UTC
From: 0432167FGSDFS <22gbngbfgbb@gmail.com>
Message-ID: <93ba36f3-3158-424f-b278-824eedb05f3e@d2g2000pbd.googlegroups.com>
Source record: 240

VERY VERY VERY HOT HOT HOT ONLY HOT
http://acresesandmodels.blogspot.in/2011/06/real-kiss-hot-videos.html

HOT HOT LIP KISS
http://hotvideosfreesee.blogspot.in/2010/06/hot-for-youth.html
SUPER HOT PHOTOS
http://hotvideosfreesee.blogspot.in/2010/06/hot-101.html
YOUTH HOT PHOTOS
http://hotvideosfreesee.blogspot.in/2010/06/hot-lip-kiss-12.html
ONLY HOT HOT
http://hotvideosfreesee.blogspot.in/2010/06/supr-hot-never-seen.html
SUPER HOT NEVER SEEN
http://hotvideosfreesee.blogspot.in/2010/06/supe-r-hot-kiss-op.html
HEROINE LIP KISS
http://hotvideosfreesee.blogspot.in/2010/06/kajal-best-lip-kiss.html

for mopre hot videos
http://allvideosforyouth.blogspot.in/2010/08/super-hot-lip-kiss.html

jobs
http://alljobsaywhere.blogspot.in/

mobile

mobile games free download
http://mobileallinforation.blogspot.in

interview question
java interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/java-interview-questions-and-answe
rs.html
oracle interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/oracle-interview-questions-and-ans
wers.html
hardware interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/hardware-interview-questions-and-a
nswers.html
networking interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/networking-interview-questions-and
.html
dotnet interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/dotnet-interview-questions-and-ans
wers.html
c interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/c-interview-questions-and-answers.
html

datawarehousing interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/datawarehousing-interview-questions-and.html
sap interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/sap-interview-questions-and-answers.html

all jobs
java jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/java-jobs.html
oracle jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/oracle-jobs.html
sap jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/sap-jobs.html
hardware jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/hardware-jobs.html
networking jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/networking-jobs.html
datawarehousing jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/datawarehousing-jobs.html
GOOGLE ADSENSE
http://alljobsandinterviwquestions.blogspot.com/2012/08/google-adsense.html

18. Re: Making a 2m/70cm + 1.25m diplexer

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-09 23:49:55 UTC
From: Bruce Gordon <fast@btpost.net>
Message-ID: <fast-2942D1.14494709012013@news.starband.net>
Source record: 241

In article <SMidnbZlSsofOHbNnZ2dnUVZ5vWdnZ2d@giganews.com>,
"coffelt2" <coffelt2@comcast.net> wrote:

> >> .> Been an Extra class ham for over 10 years.
> >> > Repaired the CB radios for several years to about 1976 to pick up some
> >> > spending money.
> >>
> >> Hi, Ralph, am enjoying the give and take here! I also repaired CB radios
> >> for extra meat on the table in the mid 1960's. Extra class very nearly
> >> 43 years! First class Radiotelephone licensed about the same time,
> >> Don't let "em get to 'ya! You've "been there, done that"!
> >>
> >> Hooooyah!
> >>
> >> Old Chief Lynn, W7LTQ
> >
> > Hey Lynn, Long time no chat.....
> >
> > --
> > Bruce in Alaska add path before the @ for email
>
> Good to hear 'ya, Bruce!
> Wait'n for 10 meters to open...... any hope?
>
> Old Chief Lynn

Well not anytime soon, unless Mr. Sun gets a lot more active.....
So far this cycle has been a BUST....

--
Bruce in Alaska add path before the @ for email

19. INDIAN MALLU HOT VIDEOS AND ALL LIP KISS PHOTOS SE33

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-12 01:13:29 UTC
From: 0432167FGSDFS <22gbngbfgbb@gmail.com>
Message-ID: <3e5de835-6988-48f1-9390-5f5bfbd9218d@xm8g2000pbc.googlegroups.com>
Source record: 242

TOLLYWOOD HOT
http://tbiphotos.blogspot.in/2013/01/tollywood-hot.html
TAMIL HOT
http://tbiphotos.blogspot.in/2013/01/tamil-hot.html
MALLU HOT
http://tbiphotos.blogspot.in/2013/01/mallu-hot.html
BOLLYWOOD HOT
http://tbiphotos.blogspot.in/2013/01/bollywood-hot.html
INDIAN HOT
http://tbiphotos.blogspot.in/2013/01/indian-hot.html
MALLU KISS
http://tbiphotos.blogspot.in/2013/01/mallu-kiss.html
TOLLYWOOD KISS
http://tbiphotos.blogspot.in/2013/01/tollywood-kiss.html
TAMIL LIP KISS
http://tbiphotos.blogspot.in/2013/01/tamil-lip-kiss.html
BOOLYWOOD LIP KISS
http://tbiphotos.blogspot.in/2013/01/boolywood-lip-kiss.html
INDIAN LIP KISS
http://tbiphotos.blogspot.in/2013/01/indian-lip-kiss.html
INDIAN REAL LIP KISS
http://tbiphotos.blogspot.in/2013/01/indian-real-lip-kiss.html

ALL INTERVIEW QUESTIONS

java interview questions
http://allinterviewsquestions.blogspot.in/2009/02/java-interview-questions.html
oracle interview questions
http://allinterviewsquestions.blogspot.in/2009/02/oracle-interview-questions.html
hardware interview questions 4
http://allinterviewsquestions.blogspot.in/2009/02/hardware-interview-questions.html
SQL Server Interview Questions
http://allinterviewsquestions.blogspot.in2009/02/sql-server-interview-questions.html
dotnet questions 3
http://allinterviewsquestions.blogspot.in/2009/02/dotnet-questions-3.html

20. Crossposting Permitted to rec.radio.amateur.moderated

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-15 07:00:02 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/moderated/crossposting-1-1358233201@panix.com>
Source record: 243
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.amateur.space,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/moderated/crossposting
Revision: 1.2 2011/11/02 04:08:53
Posting-Frequency: posted twice monthly
URL: http://www.panix.com/~rram/usenet/rram/index.html

Changes followed by "|".

After a 30-day public discussion and feedback period to gauge reader
opinions in March of 2009:

http://groups.google.com/group/rec.radio.amateur.moderated/browse_thread/thread/d7d337db35
f23326

the rec.radio.amateur.moderated Moderation Team had decided to consider |
amending its charter, and permit limited simultaneous crossposting to
rec.radio.amateur.moderated and one other unmoderated
amateur-radio-related discussion newsgroup. After a successful trial |
period (90 days, through early July 2009), we decided to adopt this |
change permanently. |

Approved rec.radio.amateur.* newsgroups are those that are currently
listed in the latest version of the "List of Big Eight Newsgroups" which
is crossposted monthly to news.announce.newgroups, news.groups, and
news.lists.misc.

Approved alt.radio.amateur.* and alt.ham-radio.* newsgroups are those
that have been created consistent with the suggestions in "So You Want
to Create an Alt Newsgroup" at:

http://www.faqs.org/faqs/alt-creation-guide/

Approved regional hierarchy newsgroups are those that contain either
"radio.amateur" or "ham-radio" in their names, including
uk.radio.amateur and aus.radio.amateur.misc.

We will make every reasonable effort to keep our list of approved
newsgroups up-to-date. In case we have overlooked any, and a submission
is rejected in error as a result, the rejected submitter can E-mail us
at our administrative contact address (in the signature at the bottom of
this article, and the default Reply-To for the rejection message)
requesting that it be added, and that the article be approved. We may
still choose to reject articles crossposted to any alt.* newsgroup with
an inappropriate name, including obscene language, embedded
name-calling, or encouragement of unlawful conduct.
```

Please direct any comments, questions, or criticisms to
rec-radio-amateur-moderated-request@panix.com.

21. Headlight bulb load quickfix

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-18 19:11:56 UTC
From: vu2nan <vu2nan.b3f8c78@radiobanter.com>
Message-ID: <vu2nan.b3f8c78@radiobanter.com>
Source record: 244

Here's the link.

http://tinyurl.com/byhtv8z

73,

Nandu.

--
vu2nan

22. Re: Headlight bulb load quickfix

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-19 05:49:25 UTC
From: coffelt2 <coffelt2@comcast.net>
Message-ID: <EImdnczCp-F5rmfNnZ2dnUVZ5sCdnZ2d@giganews.com>
Source record: 245

I really could have used that trick a few months ago..... same problem you encountered!

Old Chief Lynn, W7LTQ

"vu2nan" <vu2nan.b3f8c78@radiobanter.com> wrote in message news:vu2nan.b3f8c78@radiobanter.com...
>
> Here's the link.
>
> http://tinyurl.com/byhtv8z
>
> 73,
>
> Nandu.
>
>
>
>
> --
> vu2nan

23. Vanessa Lane Intensitivity 6 Scene 1

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-19 11:42:12 UTC
From: Iran <tamarmadgecay@gmail.com>
Message-ID: <8529c906-b7b2-4781-acf6-38df2854b554@googlegroups.com>
Source record: 246

Vanessa Lane Intensitivity 6 Scene 1
http://blowjob-date.blogspot.com/2012/12/vanessa-lane-intensitivity-6-scene-1.html

24. Re: Headlight bulb load quickfix

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-19 15:09:20 UTC
From: vu2nan <vu2nan.b408998@radiobanter.com>
Message-ID: <vu2nan.b408998@radiobanter.com>
Source record: 247

Hi Old Chief Lynn,

I faced it earlier too with a 20A supply. It didn't strike me then and I had to be content with partial loading on CW using an old Yaesu FT-747GX.

Many thanks.

73,

Nandu.

coffelt2;800891 Wrote:
> I really could have used that trick a few months ago..... same problem
> you
> encountered!
>
> Old Chief Lynn, W7LTQ
>
>
> "vu2nan" vu2nan.b3f8c78@radiobanter.com wrote in message
> news:vu2nan.b3f8c78@radiobanter.com...-
>
> Here's the link.
>
> http://tinyurl.com/byhtv8z
>
> 73,
>
> Nandu.
>
>
>
>
>
> --
> vu2nan -

--
vu2nan

25. Re: INDIAN MALLU HOT VIDEOS AND ALL LIP KISS PHOTOS SE33

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-19 23:31:30 UTC
From: ogrowup@webtv.net
Message-ID: <21226-50FB2CD2-162@storefull-3173.bay.webtv.net>
Source record: 248

Lip kisses?

There are videos/ images on the web that would shock Larry Flynt.

Loser.

--
"A man who can own a gun is a citizen. A man who cannot own a gun is a subject."--

Unknown

26. PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-20 15:24:46 UTC
From: raypsi <rborowiak@gmail.com>
Message-ID: <c0533393-1c57-4252-9ff4-36b871cb782f@ck1g2000vbb.googlegroups.com>
Source record: 249

I want to make a minus 400vdc supply for my grounded screen QRO PA. I have iron on resist for masking, for solder masking silk screening and PCB etching I'd like to make it look professional. The Solder Masking Iron on is blue and can be used to etch and silk screen I have 5 sheets of 8.5X11. I have PCB material and ferric chloride

I thought PCB123 had schematic layouts that went to PCB layouts so I could just print that on clear mylar on my printer and expose it to the iron on resist.

I could do every thing by hand then I need a drafting table.

Anybody have a link to a good tutorial?

I got laptop wit 32bit XP pro and an HP printer

27. Asian gets pounded hard at school

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-20 16:31:53 UTC
From: Iran <tamarmadgecay@gmail.com>
Message-ID: <689825bd-b38d-4dce-ac4a-7c37c2516161@googlegroups.com>
Source record: 250

Asian gets pounded hard at school http://t.co/LBQdX7JO

28. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-20 23:23:04 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <50fc7c58$0$47101$c3e8da3$9b4ff22a@news.astraweb.com>
Source record: 2

On Sun, 20 Jan 2013 07:24:46 -0800, raypsi wrote:

> I want to make a minus 400vdc supply for my grounded screen QRO PA. I
> have iron on resist for masking, for solder masking silk screening and
> PCB etching I'd like to make it look professional. The Solder Masking
> Iron on is blue and can be used to etch and silk screen I have 5 sheets
> of 8.5X11. I have PCB material and ferric chloride
>
> I thought PCB123 had schematic layouts that went to PCB layouts so I
> could just print that on clear mylar on my printer and expose it to the
> iron on resist.
>
> I could do every thing by hand then I need a drafting table.
>
> Anybody have a link to a good tutorial?
>
> I got laptop wit 32bit XP pro and an HP printer

I haven't used PCB123 but I have used ExpressPCB which is similar. The purpose of these products is to sell PC boards made by the company that provides the software. Since this is the case, there is no provision (at least in ExpressPCB) to print a layout in a way that can be used to etch a board. Also, at least for ExpressPCB, the NRE is way too expensive to have one board made for home use. If you find these things to not be true for PCB123, please let us know; it would be welcome news.

Another thing that I haven't done but have heard is that clear mylar isn't a good medium for making masks; the ink/toner won't go on thickly enough to be opaque. Vellum is a better choice.

Good luck,

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

29. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-21 08:58:22 UTC
From: raypsi <RBorowiak@gmail.com>
Message-ID: <0396d072-1706-41ff-9838-3ec4ebbb87cb@googlegroups.com>
Source record: 3

Well then, when I send in the files they need to produce the PCB how will I know it's going to come out right, wait unless the software shows me a layout of the PCB on my monitor and I just do a print screen and photoshop it?
A costumer would be not so bright to spend hundreds of USD on a bunch of PCB's that don't come out right.
PCB123's minimum cost is $109 for 2pcs of 9 square inch board. You must be from a third world backwater country if you think that is a high price.

30. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-21 18:15:54 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kdk0kt$697$2@dont-email.me>
Source record: 4

On 1/21/2013 3:58 AM, raypsi wrote:
> Well then, when I send in the files they need to produce the PCB how will I know it's going to come out right, wait unless the software shows me a layout of the PCB on my monitor and I just do a print screen and photoshop it?
> A costumer would be not so bright to spend hundreds of USD on a bunch of PCB's that don't come out right.
> PCB123's minimum cost is $109 for 2pcs of 9 square inch board. You must be from a third world backwater country if you think that is a high price.

You don't get the concept. They lock you into buying boards only from them. Otherwise they would just let you produce Gerber files from the tool.

Why not use a good, open source tool like FreePCB? That is what I recommend.

Rick

31. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-21 22:12:43 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <GdSdnX--ldTGIGDNnZ2dnUVZ5qednZ2d@giganews.com>
Source record: 5

On Mon, 21 Jan 2013 00:58:22 -0800, raypsi wrote:

> Well then, when I send in the files they need to produce the PCB how
> will I know it's going to come out right, wait unless the software shows
> me a layout of the PCB on my monitor and I just do a print screen and
> photoshop it?

You're supposed to be good enough to look at the layout on the screen and know. The whole point of the rapid-turn PCB houses is that they make you a board so that you don't have to.

> A costumer would be not so bright to spend hundreds of USD
> on a bunch of PCB's that don't come out right. PCB123's minimum cost is
> $109 for 2pcs of 9 square inch board. You must be from a third world
> backwater country if you think that is a high price.

That's a much higher price than BatchPCB, which charges $2.50/sqin + $10/order.

$109/board is too much for my hobby budget, although I routinely pay that much for professional stuff.

--
My liberal friends think I'm a conservative kook.
My conservative friends think I'm a liberal kook.
Why am I not happy that they have found common ground?

Tim Wescott, Communications, Control, Circuits & Software
http://www.wescottdesign.com

32. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-21 22:13:41 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <GdSdnX6-ldQIIGDNnZ2dnUVZ5qcAAAAA@giganews.com>
Source record: 6

On Mon, 21 Jan 2013 13:15:54 -0500, rickman wrote:

> On 1/21/2013 3:58 AM, raypsi wrote:
>> Well then, when I send in the files they need to produce the PCB how
>> will I know it's going to come out right, wait unless the software
>> shows me a layout of the PCB on my monitor and I just do a print screen
>> and photoshop it? A costumer would be not so bright to spend hundreds
>> of USD on a bunch of PCB's that don't come out right. PCB123's minimum
>> cost is $109 for 2pcs of 9 square inch board. You must be from a third
>> world backwater country if you think that is a high price.
>
> You don't get the concept. They lock you into buying boards only from
> them. Otherwise they would just let you produce Gerber files from the
> tool.
>
> Why not use a good, open source tool like FreePCB? That is what I
> recommend.
>
> Rick

I use Eagle, but I started before the open-source tools got good enough
to be real. They have a limited-size free (but not open source) version.

--
My liberal friends think I'm a conservative kook.
My conservative friends think I'm a liberal kook.
Why am I not happy that they have found common ground?

Tim Wescott, Communications, Control, Circuits & Software
http://www.wescottdesign.com

33. Seeking New FAQ/Intro Maintainers for rec.radio.amateur.*

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-22 07:05:01 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/recruitment-1-1358838300@panix.com>
Source record: 7
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/recruitment
Revision: 1.2 2009/11/25 14:41:01
Posting-Frequency: posted twice monthly
URL: http://www.faqs.org/faqs/radio/personal-intro/

Changes followed by "|".

The rec.radio.info newsgroup, first established in 1993, has been
recently revived by an active moderation team. We are currently seeking
suitable information, FAQ, and bulletin articles from the entire
rec.radio.* newsgroup hierarchy for simultaneous cross-posting to our
newsgroup.

We are seeking a replacement maintainer for the following information
bulletin formerly posted to rec.radio.amateur.* (and currently archived
at http://www.faqs.org/faqs/radio/personal-intro/ ):

radio/personal-intro
Subject: Guide to the rec.radio Newsgroups
Maintainer: jeffreyh@Hawaii.Edu (Jeffrey Herman)
Last Posted: 9 Nov 2001 06:18:17 GMT
Posting-Frequency: 15th of each month

One significant omission, requiring immediate updates, for this article |
is that it does not mention newer amateur radio newsgroups created since |
it was written, including: |

rec.radio.amateur.antenna |
rec.radio.amateur.boatanchors |
rec.radio.amateur.dx |
rec.radio.amateur.equipment |
rec.radio.amateur.homebrew |
rec.radio.amateur.moderated |
rec.radio.amateur.space |

We are willing to provide any technical support necessary to get this
article updated and automatically posted again at a regular interval.
This would include establishing contact with the original maintainer for
any necessary permissions. We would prefer to seek a new, dedicated
maintainer at this time, rather than start auto-posting the original
article ourselves.

For more information about our newsgroup, see:
```

http://www.panix.com/~rram/usenet/rri/index.html

Please direct any comments, questions, or criticisms to
rec-radio-info-request@panix.com.

34. Hot mama takes it from behind

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-22 15:23:55 UTC
From: Iran <tamarmadgecay@gmail.com>
Message-ID: <565682e9-1e51-4939-b0ad-7bd2c48a4881@googlegroups.com>
Source record: 8

Hot mama takes it from behind http://t.co/diyQ5GAt

35. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-23 01:11:19 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <50ff38b7$0$52209$c3e8da3$92d0a893@news.astraweb.com>
Source record: 9

On Mon, 21 Jan 2013 13:15:54 -0500, rickman wrote:

> On 1/21/2013 3:58 AM, raypsi wrote:
>> Well then, when I send in the files they need to produce the PCB how
>> will I know it's going to come out right, wait unless the software
>> shows me a layout of the PCB on my monitor and I just do a print screen
>> and photoshop it?
>> A costumer would be not so bright to spend hundreds of USD on a bunch
>> of PCB's that don't come out right.
>> PCB123's minimum cost is $109 for 2pcs of 9 square inch board. You must
>> be from a third world backwater country if you think that is a high
>> price.
>
> You don't get the concept. They lock you into buying boards only from
> them. Otherwise they would just let you produce Gerber files from the
> tool.
>
> Why not use a good, open source tool like FreePCB? That is what I
> recommend.
>
> Rick

Actually ExpressPCB doesn't completely lock you in. They will make
Gerber files for you for $60 AFTER you have ordered some boards.

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

36. HOT SEXY VIDEOS PRESENT MASLA PHOTOS FOR ADULTS

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-24 10:15:48 UTC
From: 0432167FGSDFS <22gbngbfgbb@gmail.com>
Message-ID: <02f0c706-bae3-4225-85c3-7aa4ac3dc045@th3g2000pbc.googlegroups.com>
Source record: 10

VERY VERY VERY HOT HOT HOT ONLY HOT
http://acresesandmodels.blogspot.in/2011/06/real-kiss-hot-videos.html

for mopre hot videos
http://allvideosforyouth.blogspot.in/2010/08/super-hot-lip-kiss.html

jobs
http://alljobsaywhere.blogspot.in/

mobile

mobile games free download
http://mobileallinforation.blogspot.in

interview question
java interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/java-interview-questions-and-answers.html
oracle interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/oracle-interview-questions-and-answers.html
hardware interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/hardware-interview-questions-and-answers.html
networking interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/networking-interview-questions-and.html
dotnet interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/dotnet-interview-questions-and-answers.html
c interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/c-interview-questions-and-answers.html
datawarehousing interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/datawarehousing-interview-questions-and.html
sap interview questions and answers
http://alljobsandinterviwquestions.blogspot.com/2012/08/sap-interview-questions-and-answers.html

all jobs
java jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/java-jobs.html
oracle jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/oracle-jobs.html
sap jobs

http://alljobsandinterviwquestions.blogspot.com/2012/08/sap-jobs.html
hardware jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/hardware-jobs.html
networking jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/networking-jobs.html
datawarehousing jobs
http://alljobsandinterviwquestions.blogspot.com/2012/08/datawarehousing-jobs.html
GOOGLE ADSENSE
http://alljobsandinterviwquestions.blogspot.com/2012/08/google-adsense.html

37. Re: Wes Hayward hybrid cascode amplifiers from 2007 QST.

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-01-28 21:31:07 UTC
From: Dana <dana.myers@gmail.com>
Message-ID: <87a54986-5a5d-46a5-bd6d-4fcd1ca1697a@googlegroups.com>
Source record: 11

On Friday, December 14, 2012 4:08:58 PM UTC-8, raypsi wrote:
> On Tuesday, November 6, 2012 5:18:14 AM UTC-5, clifford wright wrote:
>
> > Has anyone else tried these circuits?
>
> >
>
> > I have built 2 examples, a 9 MHZ AGC controlled amplifier and a 20 dB wideband amp for a noise cancelling system.
>
> >
>
> > BIG problems! The diode string in the source of the FET always biases the J310 OFF.
>
>
>
> According to the spec sheet curves:
>
> The j310 gets turned off with a bias of 3.7vdc,

The datasheet for the J310 specifies a pinch-off voltage range
of -2.0 to -6.5V. Completely normal production variation may be
quite different than the spec sheet curve. So it sounds like
Clifford has J310s that have a relatively small pinch-off voltage,
perhaps even out of spec, and the ~2V drop of the diode chain is
biasing the FET off.

Data sheet for the Fairchild parts: http://www.fairchildsemi.com/ds/J3/J310.pdf

Dana K6JQ

38. Crossposting Permitted to rec.radio.amateur.moderated

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-01 07:00:02 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/moderated/crossposting-1-1359702000@panix.com>
Source record: 12
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.amateur.space,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/moderated/crossposting
Revision: 1.2 2011/11/02 04:08:53
Posting-Frequency: posted twice monthly
URL: http://www.panix.com/~rram/usenet/rram/index.html

Changes followed by "|".

After a 30-day public discussion and feedback period to gauge reader
opinions in March of 2009:

http://groups.google.com/group/rec.radio.amateur.moderated/browse_thread/thread/d7d337db35
f23326

the rec.radio.amateur.moderated Moderation Team had decided to consider |
amending its charter, and permit limited simultaneous crossposting to
rec.radio.amateur.moderated and one other unmoderated
amateur-radio-related discussion newsgroup. After a successful trial |
period (90 days, through early July 2009), we decided to adopt this |
change permanently. |

Approved rec.radio.amateur.* newsgroups are those that are currently
listed in the latest version of the "List of Big Eight Newsgroups" which
is crossposted monthly to news.announce.newgroups, news.groups, and
news.lists.misc.

Approved alt.radio.amateur.* and alt.ham-radio.* newsgroups are those
that have been created consistent with the suggestions in "So You Want
to Create an Alt Newsgroup" at:

http://www.faqs.org/faqs/alt-creation-guide/

Approved regional hierarchy newsgroups are those that contain either
"radio.amateur" or "ham-radio" in their names, including
uk.radio.amateur and aus.radio.amateur.misc.

We will make every reasonable effort to keep our list of approved
newsgroups up-to-date. In case we have overlooked any, and a submission
is rejected in error as a result, the rejected submitter can E-mail us
at our administrative contact address (in the signature at the bottom of
this article, and the default Reply-To for the rejection message)
requesting that it be added, and that the article be approved. We may
still choose to reject articles crossposted to any alt.* newsgroup with
an inappropriate name, including obscene language, embedded
name-calling, or encouragement of unlawful conduct.
```

Please direct any comments, questions, or criticisms to
rec-radio-amateur-moderated-request@panix.com.

39. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-01 17:52:51 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <9-ydnTYEWcBunZHMnZ2dnUVZ5gmdnZ2d@giganews.com>
Source record: 13

On Wed, 23 Jan 2013 01:11:19 +0000, Jim Mueller wrote:

> On Mon, 21 Jan 2013 13:15:54 -0500, rickman wrote:
>
>> On 1/21/2013 3:58 AM, raypsi wrote:
>>> Well then, when I send in the files they need to produce the PCB how
>>> will I know it's going to come out right, wait unless the software
>>> shows me a layout of the PCB on my monitor and I just do a print
>>> screen and photoshop it?
>>> A costumer would be not so bright to spend hundreds of USD on a bunch
>>> of PCB's that don't come out right.
>>> PCB123's minimum cost is $109 for 2pcs of 9 square inch board. You
>>> must be from a third world backwater country if you think that is a
>>> high price.
>>
>> You don't get the concept. They lock you into buying boards only from
>> them. Otherwise they would just let you produce Gerber files from the
>> tool.
>>
>> Why not use a good, open source tool like FreePCB? That is what I
>> recommend.
>>
>> Rick
>
> Actually ExpressPCB doesn't completely lock you in. They will make
> Gerber files for you for $60 AFTER you have ordered some boards.

So, a deal that's 99.44% sucky is better than a deal that's 100% sucky?

I dunno, I think I'd rather get some free layout tools and learn to use
them.

--
My liberal friends think I'm a conservative kook.
My conservative friends think I'm a liberal kook.
Why am I not happy that they have found common ground?

Tim Wescott, Communications, Control, Circuits & Software
http://www.wescottdesign.com

40. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-03 03:58:47 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <510de077$0$17022$c3e8da3$76a7c58f@news.astraweb.com>
Source record: 14

On Fri, 01 Feb 2013 11:52:51 -0600, Tim Wescott wrote:

> On Wed, 23 Jan 2013 01:11:19 +0000, Jim Mueller wrote:
>
>> On Mon, 21 Jan 2013 13:15:54 -0500, rickman wrote:
>>
>>> On 1/21/2013 3:58 AM, raypsi wrote:
>>>> Well then, when I send in the files they need to produce the PCB how
>>>> will I know it's going to come out right, wait unless the software
>>>> shows me a layout of the PCB on my monitor and I just do a print
>>>> screen and photoshop it?
>>>> A costumer would be not so bright to spend hundreds of USD on a bunch
>>>> of PCB's that don't come out right.
>>>> PCB123's minimum cost is $109 for 2pcs of 9 square inch board. You
>>>> must be from a third world backwater country if you think that is a
>>>> high price.
>>>
>>> You don't get the concept. They lock you into buying boards only from
>>> them. Otherwise they would just let you produce Gerber files from the
>>> tool.
>>>
>>> Why not use a good, open source tool like FreePCB? That is what I
>>> recommend.
>>>
>>> Rick
>>
>> Actually ExpressPCB doesn't completely lock you in. They will make
>> Gerber files for you for $60 AFTER you have ordered some boards.
>
> So, a deal that's 99.44% sucky is better than a deal that's 100% sucky?
>
> I dunno, I think I'd rather get some free layout tools and learn to use
> them.

Depends on how you are using it. ExpressPCB is great if you need a quick prototype, and, if it works out, you can get Gerbers to go into production. The software is very easy to use; hardly any learning curve at all. It's just not appropriate for hobby projects. I used it when laying out the board myself was quicker than writing instructions for our regular layout person.

They also include a schematic capture program which is equally easy to use and, if all you need is a schematic, is fine. It's made for Windows but I'm using it under Linux with the aid of Wine (a popular Windows emulator).

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

41. Seeking New FAQ/Intro Maintainers for rec.radio.amateur.*

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-07 07:05:01 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/recruitment-1-1360220700@panix.com>
Source record: 15
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/recruitment
Revision: 1.2 2009/11/25 14:41:01
Posting-Frequency: posted twice monthly
URL: http://www.faqs.org/faqs/radio/personal-intro/

Changes followed by "|".

The rec.radio.info newsgroup, first established in 1993, has been
recently revived by an active moderation team. We are currently seeking
suitable information, FAQ, and bulletin articles from the entire
rec.radio.* newsgroup hierarchy for simultaneous cross-posting to our
newsgroup.

We are seeking a replacement maintainer for the following information
bulletin formerly posted to rec.radio.amateur.* (and currently archived
at http://www.faqs.org/faqs/radio/personal-intro/ ):

radio/personal-intro
Subject: Guide to the rec.radio Newsgroups
Maintainer: jeffreyh@Hawaii.Edu (Jeffrey Herman)
Last Posted: 9 Nov 2001 06:18:17 GMT
Posting-Frequency: 15th of each month

One significant omission, requiring immediate updates, for this article |
is that it does not mention newer amateur radio newsgroups created since |
it was written, including: |

rec.radio.amateur.antenna |
rec.radio.amateur.boatanchors |
rec.radio.amateur.dx |
rec.radio.amateur.equipment |
rec.radio.amateur.homebrew |
rec.radio.amateur.moderated |
rec.radio.amateur.space |

We are willing to provide any technical support necessary to get this
article updated and automatically posted again at a regular interval.
This would include establishing contact with the original maintainer for
any necessary permissions. We would prefer to seek a new, dedicated
maintainer at this time, rather than start auto-posting the original
article ourselves.

For more information about our newsgroup, see:
```

http://www.panix.com/~rram/usenet/rri/index.html

Please direct any comments, questions, or criticisms to
rec-radio-info-request@panix.com.

42. Headlight bulb load quickfix

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-08 10:11:03 UTC
From: vu2nan <vu2nan.b5a9338@radiobanter.com>
Message-ID: <vu2nan.b5a9338@radiobanter.com>
Source record: 16

Here's the link.

http://tinyurl.com/byhtv8z

73,

Nandu.

--
vu2nan

43. Headlight bulb load quickfix

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-09 13:32:38 UTC
From: vu2nan <vu2nan.b5c3918@radiobanter.com>
Message-ID: <vu2nan.b5c3918@radiobanter.com>
Source record: 17

Here's the link.

http://tinyurl.com/byhtv8z

73,

Nandu.

--
vu2nan

44. Crossposting Permitted to rec.radio.amateur.moderated

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-15 07:00:03 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/moderated/crossposting-1-1360911602@panix.com>
Source record: 18
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.amateur.space,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/moderated/crossposting
Revision: 1.2 2011/11/02 04:08:53
Posting-Frequency: posted twice monthly
URL: http://www.panix.com/~rram/usenet/rram/index.html

Changes followed by "|".

After a 30-day public discussion and feedback period to gauge reader
opinions in March of 2009:

http://groups.google.com/group/rec.radio.amateur.moderated/browse_thread/thread/d7d337db35
f23326

the rec.radio.amateur.moderated Moderation Team had decided to consider |
amending its charter, and permit limited simultaneous crossposting to
rec.radio.amateur.moderated and one other unmoderated
amateur-radio-related discussion newsgroup. After a successful trial |
period (90 days, through early July 2009), we decided to adopt this |
change permanently. |

Approved rec.radio.amateur.* newsgroups are those that are currently
listed in the latest version of the "List of Big Eight Newsgroups" which
is crossposted monthly to news.announce.newgroups, news.groups, and
news.lists.misc.

Approved alt.radio.amateur.* and alt.ham-radio.* newsgroups are those
that have been created consistent with the suggestions in "So You Want
to Create an Alt Newsgroup" at:

http://www.faqs.org/faqs/alt-creation-guide/

Approved regional hierarchy newsgroups are those that contain either
"radio.amateur" or "ham-radio" in their names, including
uk.radio.amateur and aus.radio.amateur.misc.

We will make every reasonable effort to keep our list of approved
newsgroups up-to-date. In case we have overlooked any, and a submission
is rejected in error as a result, the rejected submitter can E-mail us
at our administrative contact address (in the signature at the bottom of
this article, and the default Reply-To for the rejection message)
requesting that it be added, and that the article be approved. We may
still choose to reject articles crossposted to any alt.* newsgroup with
an inappropriate name, including obscene language, embedded
name-calling, or encouragement of unlawful conduct.
```

Please direct any comments, questions, or criticisms to
rec-radio-amateur-moderated-request@panix.com.

45. INDIAN MALLU HOT VIDEOS AND ALL LIP KISS PHOTOS SE33

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-16 06:42:20 UTC
From: 9038 <1jghgcgcc@gmail.com>
Message-ID: <dd903a0d-152d-4eb0-a76f-c71b7f219f98@h6g2000pbt.googlegroups.com>
Source record: 19

tollywood actreses hot
http://indianbtphotos.blogspot.in/2013/02/tollywood-actreses.html
tamil actrsese hot
http://indianbtphotos.blogspot.in/2013/02/tamil-actrsese-hot.html
kollywood hot
http://indianbtphotos.blogspot.in/2013/02/kollywood-hot.html
south hot
http://indianbtphotos.blogspot.in/2013/02/south-hot.html
shakeela hot
http://indianbtphotos.blogspot.in/2013/02/shakeela-hot.html
bollywood hot
http://indianbtphotos.blogspot.in/2013/02/bollywood-hot.html

46. AmateurLogic.TV for Sunday 17 February 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-17 05:33:30 UTC
From: rec-radio-info-request@panix.com
Message-ID: <90e6ba3fcddfb8ad9b04d5e4d792@google.com>
Source record: 20
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

AmateurLogic.TV

//
AmateurLogic.TV Episode 50

Posted: 14 Feb 2013 02:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic50_hi.wmv

Peter builds the NS-40 40-Meter QRP Transmitter Kit. George and Tommy visit friends and find new toys at the 2013 Capital City Hamfest. Emile talks about Ham Radio Deluxe and Automating routine tasks. We run into someone you may remember and much more.

1:09:00 of the usual suspects.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic50_hi.wmv

//
AmateurLogic.TV Episode 49

Posted: 14 Jan 2013 02:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic49_hi.wmv

George builds a highly efficient 7-40 volt Raspberry Pi power regulator. Tommy constructs a Tape Measure Yagi antenna. Peter’s UG-802 Android Dongle. Emile’s Baofeng UV-5RC. Icom’s new IC-7100, ID-51A radios, and more.

1:02:50 of AmateurLogic entertainment.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic49_hi.wmv

//
AmateurLogic.TV Episode 48

Posted: 15 Dec 2012 02:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic48_hi.wmv

George shows us how to setup an HF Radio Station. Tommy builds a Foxhunt beacon with the Arduino. Peter has a Raspberry Pi present for you. Emile talks about hi tech cheap stuff.

We give away the Complete HF Station featuring great gear from Icom, MFJ,
Wireman & Heil Sound.

Santa Tracking, The end of the world and more…

59:51 of holiday entertainment.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic48_hi
.wmv

//
AmateurLogic.TV Episode 47

Posted: 15 Nov 2012 02:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic47_hi
.wmv

George visits the MFJ Metal Show for some heavy metal fun. Tommy introduces
us to the Arduino microcontroller. Peter

builds a 1/4 wave garage mounted vertical. Emile talks about calibrating
his HF rig with WWV. And of course the usual

fun and entertainment.

This is the last show before we give away the Complete HF Radio Station
featuring an Icom IC-7200 and all the necessary

accessories. Get your entry in now.

01:03:15 of AmateurLogic entertainment.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic47_hi
.wmv

//
AmateurLogic.TV Episode 36

Posted: 06 Feb 2012 02:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic36_hi
.wmv

We visit the Capital City Hamfest in Jackson, MS and talk with Tom
Samacicio KB4HQA of HQARadio.com, Don Wilbanks AE5DW of Amateur Radio
Newsline, and Ward Silver N0AX of the ARRL. Peter drops in on the Melborne
Mini Maker Faire for some fun.

1:02:29 of Hamfest FunÖ
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic36_hi
.wmv

//
AmateurLogic.TV Episode 32

Posted: 10 Aug 2011 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic32_hi.wmv

Titans In Space. We visit the Olde Town Middle School near space balloon launch and track it from the shack using several analog and digital modes. Peter finds use for his chinese tablet as a teleprompter. And your viewer email and comments.

Itís 1:03:31 of AmateurLogic excitement.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic32_hi.wmv

//
AmateurLogic.TV Episode 31

Posted: 29 Jun 2011 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic31_hi.wmv

Field Day In The Wilderness. Welcome to the first AmateurLogic.TV Field Day Extravaganza. Weíve shown you what Field Day is before by visiting the Jackson Amateur Radio Clubís events. This year we decided to go it alone. The crew (along with a few friends) set off for the woods to get completely off the grid. Jim also wanted to do some astronomy photography and this location offered lower light pollution.
Join us as we setup, operate, and campout to learn what worked and what didnít. Youíre bound to enjoy this AmateurLogic take on Field Day.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic31_hi.wmv

//
AmateurLogic.TV Episode 30

Posted: 22 Feb 2011 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic30_hi.wmv

We visit the 2011 Capital City Hamfest in Jackson, MS. We talked with old and new friends and got a look at the new Omega-Tec low profile antennas. Plus your viewer email and facebook post.

31.57 of Hamfest fun.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic30_hi.wmv

//
AmateurLogic.TV Episode 29

Posted: 26 Jan 2011 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic29_hi.wmv

In this long awaited episode we show you how to add an IF Output to the
Kenwood TS-2000 for use with a SDR. Peter demonstrates his Puxing 777 Handi
Talkie. And Tommy shows us some Online Receivers. Plus your viewer email
and facebook post.

45:58 of Ham Radio fun.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic29_hi
.wmv

//
AmateurLogic.TV Episode 28

Posted: 19 May 2010 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic28_hi
.wmv

In this episode Tommy demonstrates the great EchoLink for iPhone
application. Peter shows us his shortwave QSL collection. Our guest
Charlie, KY5U teaches us about Streaming Video and CamRadio.Net. And George
talks about I.F. (Intermediate Frequency) in radio receivers and how it can
relate to Software Defined Radio use. Plus plenty of viewer email and
Facebook comments.

Its 56:30 of very informative amateur radio content.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic28_hi
.wmv

//
AmateurLogic.TV Episode 27

Posted: 22 Feb 2010 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic27_hi
.wmv

Sit back and enjoy the Hamfest as we visit with new and old friends.
Its a review the 2010 Capital City Hamfest in Jackson, MS and the CCARC
Wyong Field Day (an Australian hamfest). Both of these are large events
that continue to grow each year.
There were huge amplifiers, new gear, old gear and lots of fun for all. We
also learn about the CamRadio Network, a new Dick Tracy device and much
more. And if thats not enough, Jim is back in this episode.

Itís 56:00 of Amateur Radio entertainment you donít want to miss.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic27_hi
.wmv

//
AmateurLogic.TV Episode 26

Posted: 02 Feb 2010 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic26_hi
.wmv

Kenwood TS-2000 as an SDR - In this first episode of the year, George shows us how to use the Kenwood TS-2000 as a Software Defined Radio with Winrad. Peter experiments with the WSPR Weak Signal mode. And Tommy teaches us how to easily create Time Lapse Videos. Plus plenty of viewer email. Its 44:04 of AmateurLogic fun.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic26_hi.wmv

//
AmateurLogic.TV Episode 25

Posted: 13 Dec 2009 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic25_hi.wmv

Peterís Excellent Space Adventure ñ Peter accepts a challenge from the UK, builds a packet station, and contacts the ISS. Tommy explores EchoMac, EchoLink for the Macintosh. George shows a better way to install PL-259 connectors and then tests the cable for faults and length with the MFJ-259B Antenna Analyzer. And as always, your viewer email and holiday greetings. 58:16
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic25_hi.wmv

//
AmateurLogic.TV Episode 24

Posted: 01 Jul 2009 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic24_hi.wmv

Spend the day with Jackson Amateur Radio Club and see how they approached Field Day 2009 in the heat of Summer. Meanwhile itís Winter for Peter in Australia with a very interesting demonstration of early Mechanical Television. Plus viewer email and lots of fun. 52:13
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic24_hi.wmv

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AmateurLogic.TV Episode 23

Posted: 11 Feb 2009 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic23_hi.wmv

Back from a long summer vacation, George and Tommy visit the Capitol City Hamfest and run into an old friend. Peter shows us how to create a warm spot. Plus plenty of Amateur Radio news and Viewer email.

48:54 of AmateurLogic goodness.
This posting includes a media file:

http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic23_hi
.wmv

//
AmateurLogic.TV Episode 22

Posted: 04 Oct 2008 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic22_hi
.wmv

Episode 22 features part two of a tour of the Australian Armyís Signals
Museum. Vintage communications equipment from WW1 - the Vietnam era. Plus
the answer to the question posed in part one concerning to use of the odd
cw device with two keys. 17 minutes of old radios and war stories.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic22_hi
.wmv

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AmateurLogic.TV Episode 21

Posted: 29 Jun 2008 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic21_hi
.wmv

Episode 21 features part one of a tour of the very interesting Australian
Armyís Signals Museum. Tommy gives us a quick look at editing video. George
introduces the MFJ-259B Antenna Analyzer and some of itís capabilities. And
Peter attends the Wireless Institute of Australiaís annual general meeting
in Broken Hill where he also visits the ìSchool of the Airî, the ìFlying
Doctorsî and more. Itís 1 hour and 10 minutes of Ham Radio entertainment.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic21_hi
.wmv

//
AmateurLogic.TV Episode 20

Posted: 30 Apr 2008 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic20_hi
.wmv

George, Tommy, and Peter are back with the long awaited episode 20. Tour
the Hy-Gain Factory and see how antennas and rotors are built. Peter tells
us all about those mysterious ëNumbers Stationsí on short wave. Plus an
update on what your hosts have been up to lately, viewer email and timely
topics.
Itís 41:42 of Ham Radio Fun.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic20_hi
.wmv

//
AmateurLogic.TV Episode 19

Posted: 10 Feb 2008 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic19_hi
.wmv

George and Tommy attend one of the best hamfests in the South. The 2008
Capital City Hamfest in Jackson, MS. Join us as we visit with familiar
faces, explore boat anchors, buy gear and more. Plus weíve got coverage of
the Introduction to Ham Radio, Antenna Theory and QRP Kit Building forums.

Itís 44:49 of Hamfest fun.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic19_hi
.wmv

//
AmateurLogic.TV Episode 18

Posted: 16 Dec 2007 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic18_hi
.wmv

Ameritron builds the most popular RF linear amplifiers on the market today.
Come with us behind the scenes to see whatís inside them and how they are
built. Itís the Ameritron Amplifier factory tour, where you will learn all
about these tube type and solid state amplifiers.

We hope you enjoy this 28:30 of Ham radio fun for your Christmas holiday
viewing.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic18_hi
.wmv

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AmateurLogic.TV Episode 17

Posted: 20 Nov 2007 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic17_hi
.wmv

Ever wonder how your electronic equipment is built.

Join us this month for a factory tour of MFJ Enterprises with Richard
Stubbs. Very interestingÖ You donít want to miss it!

Peter unvails his Amateur Television station and demonstrates ATV in
Melbourne.

And Tommy shows us a new web site that makes finding repeaters a breeze.
Google maps display the locations for easy viewing.

Itís 57:43 of Ham radio fun just in time for Thanksgiving.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic17_hi

.wmv

//
AmateurLogic.TV Episode 16

Posted: 12 Oct 2007 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic16_hi
.wmv

Itís another fun packed episode.

George has a very interesting interview with Martin F. Jue, President and
founder of MFJ Enterprises.

Peter demonstrates his WokTenna from the mountain tops downunder.

Tommy talks about the automatic tuning Yaesu ATAS-120 mobile antenna.

Jim has another Network Tools segment featuring the powerful Netstat.

And George demonstrates the Softrock Software Defined Radio using the M0KGK
SDR decoder software.

Itís 55:20 of AmateurLogic you donít want to miss.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic16_hi
.wmv

//
AmateurLogic.TV Episode 15

Posted: 03 Sep 2007 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic15_hi
.wmv

In this episode, its back to the bench to build the Softrock Software
Defined Radio. Some research is in order as many of the parts are surface
mount components. Watch how George did it and some of the pitfalls involved.

Jim introduces us to the International Beacon Project. Learn how you can
take advantage of this very useful tool for DXers.

Tommy demonstrates and explains all about the amazing Ham Radio Deluxe.
Itís the leading amateur radio software that we use regularly. Youíll see
it does a lot more than just control your ham rig.

And Peter is back with a mountain top review of the Degen DE-1103 shortwave
receiver. Although itís quite interesting to operate, youíll agree itís a
real value for the money.

Itís 44:30 of amateur radio related entertainment we know youíll enjoy.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic15_hi
.wmv

//
AmateurLogic.TV Episode 14

Posted: 21 Jul 2007 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic14_hi.wmv

Itís the Field Day Special! Join us as we visit with the Jackson Amateur Radio Club and learn all about Field Day.

Plus weíve got two unique AmateurLogic spins on Field DayÖ

Jimís poolside station set up is educational and entertaining.

Georgeís station uses a unique power generator many own, but donít think of.

Peter visits the WIA (Wireless Institute of Australia) to discuss the new Foundation class license thatís adding significant numbers to the hobby downunder.

Itís 59:31 of prime AmateurLogic laughs, information and entertainment you donít want to miss.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic14_hi.wmv

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AmateurLogic.TV Episode 13

Posted: 07 Jun 2007 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic13_hi.wmv

At last, the long awaited Episode 13!

New gear, old junk, and interesting charactersÖ Tommy and Jim visit the worlds largest amateur radio gathering and bring us back some great footage from the 2007 Dayton Hamvention.

In this episode we also introduce Peter from downunder, with hamfest coverage from the Moorabbin and District Radio Club Hamfest in Melbourne, Australia.

And our friend Foxx from the BSOD show stops by with a money saving tip on building your own Homebrew Crimpers.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic13_hi.wmv

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AmateurLogic.TV Episode 12

Posted: 12 Jan 2007 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic12_hi.wmv

Jim discusses two Network Tools that everyone already has. George digs into the junk box and comes up with a 9-volt battery clip tip. Tommy talks about using the Burn and Dodge tools to get better detail out of your photos.

This months spotlight is on the Basic Stamp Microcontroller. We tell you
what it is, and show you how to use it with a simple project. Plus your
viewer mail and other interesting bits. Its 55 minutes of Geek
entertainment thats sure to get the electrons flowing!
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic12_hi
.wmv

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AmateurLogic.TV Episode 11

Posted: 09 Dec 2006 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic11_hi
.wmv

Tommy brings us some Cold Weather Photo Tips. Jim shows us a unique method
for salvaging electronic components from PC boards. And George demonstrates
the electric Dixie Cups and String. A quick and dirty intercom you can
build from household items. Plus we cover some viewer mail in this episode.
The show runs about 42 minutes.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic11_hi
.wmv

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AmateurLogic.TV Episode 10

Posted: 31 Oct 2006 09:00 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic10_hi
.wmv

The Active Cantenna is Back! But this time we added a Direct TV Satellite
Dish to see what wifi improvements if any it makes. Tommy brings us some
cool night time photography tricks (or treats). Jim finishes the Pudding
Cup Capacitor in this episode. And George found a neat Free PDF creation
tool you just may want. The show runs about 43 minutes.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic10_hi
.wmv

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AmateurLogic.TV Episode 9

Posted: 06 Oct 2006 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic09_hi
.wmv

The guys are back with more tech and entertainment for the all purpose
geek. Jim talks about the OSI and Packet Sniffing with Ethereal. George
teaches us how to solder like a pro. And Tommys Camera Raw Files
demonstrates some neat tricks you can do. The show runs about 48 minutes.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic09_hi

.wmv

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AmateurLogic.TV Episode 8

Posted: 01 Sep 2006 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic08_hi
.wmv

It's been a great summer and now we're back to kick off season 2. In this
episode Tommy brings us another great photo tip. This one's about using
your camera's RAW mode.

Jim shows us part one of his recent capacitor building adventure.

And George demonstrates the weird ways that some devices receive their
electrical power.

The show runs about 54 minutes.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic08_hi
.wmv

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AmateurLogic.TV Episode 7

Posted: 04 May 2006 10:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic07_hi
.wmv

It's been a busy couple of months for us all. But as promised, here's
episode 7.

George introduces us to a voice over IP technology for amateur radio named
EchoLink.

Jim's back with another Network Tools segment on NMAP.

Plus we've got a little footage from the annual National Association of
Broadcasters convention in Las Vegas.

This show is the season wrap-up episode as well. We're taking off for the
summer and hope to see you all again this fallÖ

The show runs about 36 minutes.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic07_hi
.wmv

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AmateurLogic.TV Episode 6

Posted: 31 Mar 2006 08:11 PM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic06_hi
.wmv

We're back with the first episode from our new set.

This month Jim runs a few benchmarks to determine if the Apple MacIntel is ready for prime time.

IPTV show producers get ready... George hacks the Radio Shack Lavalier Microphone (#33-3013) to add phantom power and better performance.

Exposure is one of the most misunderstood areas of photograph. Tommy's back with another Photo Tip that you won't want to miss.

Plus we answer your viewer mail and tech questions.

The show runs about 34 minutes.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic06_hi.wmv

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AmateurLogic.TV Episode 5

Posted: 28 Feb 2006 12:02 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic05_hi.wmv

If you've ever wondered what a Hamfest is, then this episode is for you. We visit Jackson Amateur Radio Club's 2006 Capital City Hamfest'.

We've got an ARRL net being called, highlights from the Skywarn Forum, ARRL Katrina Review, an amateur radio Satellite Demonstration and lots more.

Plus Tommy's back with another PhotoTip' and Jim introduces a new segment on Network Tools'.

For those interested in learning more, there are also full length versions of the forums available on the downloads page as well.

To learn more about Amateur Radio please visit www.arrl.org

We hope you enjoy AmateurLogic.TV Episode 5. We'll be back again next month with a regular show.

The show runs about 39 minutes.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic05_hi.wmv

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AmateurLogic.TV Episode 4

Posted: 23 Jan 2006 04:40 PM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic04_hi.wmv

We're back with the Active Cantenna to finally do some range testing.
Thanks to Amateur Radio and a couple of video cameras, we put you right in
the action. Ride Shotgun with Jim as we test WiFi's advertised 300' range.
We were pleasantly surprised....

There are more great web sites under review in Website Roundup'.

Tommy performs a little Digital Photography Magic by producing a 10 Mega
Pixel image from a 6 Mega Pixel camera!

PLUS, there's a surprise visit from some other popular IPTV Show hosts.

The show runs about 39 minutes.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic04_hi
.wmv

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AmateurLogic.TV Episode 3

Posted: 20 Dec 2005 11:57 AM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic03_hi
_.wmv

No interviews this time... We build a high performance Active Cantenna'
from parts that you should be able to find locally. The big advantage is
that you can have a very long cable to the cantenna without any signal
loss, which is not possible on other designs.

The construction is shown in enough detail that one could follow along and
build their own.

Jim is back with another Website Roundup' segment.

And Tommy introduces Photo Tips'. This episode's topic is White Balance.

The show runs about 46 minutes.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic03_hi
_.wmv

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AmateurLogic.TV Episode 2

Posted: 17 Nov 2005 07:56 PM PST
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic02_hi
.wmv

We visit Inner City Broadcasting's Radio Studios in Jackson and speak with
Roger Lamb, Director of Technical Operations.

Plus we introduce two new segments to the show:

Jim hosts Website Roundup', where we discuss interesting sites.

From The Bench' with George hacks a Firewire cable to determine the correct wiring diagram for DV.

The entire show runs 57 minutes and change.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic02_hi.wmv

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AmateurLogic.TV Episode 1

Posted: 12 Oct 2005 01:54 PM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/AMLogic01_DV_Hi.wmv

We visit a commercial WiFi Site and look inside to see what makes it work.

Plus, there's a short segment on Emergency Power.

This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/AMLogic01_DV_Hi.wmv

47. SolderSmoke Podcast for Monday 18 February 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-18 11:05:27 UTC
From: rec-radio-info-request@panix.com
Message-ID: <e89a8f839f1d44ae4104d5fdb38d@google.com>
Source record: 26
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

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SolderSmoke Podcasts

////////////////////////////////////////
SolderSmoke149`

Posted: 17 Feb 2013 01:45 PM PST

SolderSmoke issue 149
This posting includes a media file:
http://www.soldersmoke.com/soldersmoke149.mp3
```

48. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-19 11:56:19 UTC
From: techie@w6yx.stanford.edu
Message-ID: <kfvp93poo1@usenet.stanford.edu>
Source record: 27

In article <GdSdnX--ldTGIGDNnZ2dnUVZ5qednZ2d@giganews.com>,
Tim Wescott <tim@seemywebsite.com> wrote:
>On Mon, 21 Jan 2013 00:58:22 -0800, raypsi wrote:
>
>> A costumer would be not so bright to spend hundreds of USD
>> on a bunch of PCB's that don't come out right. PCB123's minimum cost is
>> $109 for 2pcs of 9 square inch board. You must be from a third world
>> backwater country if you think that is a high price.
>
>That's a much higher price than BatchPCB, which charges $2.50/sqin + $10/
>order.
>
>$109/board is too much for my hobby budget, although I routinely pay that
>much for professional stuff.

Yep.. $109 seems a bit steep, unless you need them really fast.

Oshpark charges $5/sqin for 3pcs, for sharp looking boards.
FR4 .063" 2-layers 1oz copper. purple boards, gold flashed.
About a 12-14 day turnaround. I think they are made in the US.
They also do 4 layer boards for $10/sqin.

Thre are several Chinese shops that will do 10pcs of 5x5cm boards
for ~$10, larger sizes for a bit more. About a month turnaround.
Seeed Studio, and a couple of others.

Lets see.. for a 9sqin board..

PCB123
$109/2 = $54.50 per board

BatchPCB
9sqin x $2.50 = $22.50 per board
+$10 order = $32.50 for first board
$55 for 2 boards.

Oshpark
9sqin x $5 = $45.
$45/3 = $15 per board

So PCB123 is ~2x the price of BatchPCB, and >3x the price of Oshpark.

--
-- Welcome My Son, Welcome To The Machine --
Bob Vaughan | techie@{w6yx|tantivy}.stanford.edu | techie@tantivy.net
AF6RR | P.O. Box 19792, Stanford, Ca 94309 | 1-650-469-3850
-- I am Me, I am only Me, And no one else is Me, What could be simpler? --

49. Re: PCB123 tutorial ne1?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-20 00:15:15 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kg14gs$5cq$2@dont-email.me>
Source record: 28

On 2/19/2013 6:56 AM, Bob Vaughan wrote:
> In article<GdSdnX--ldTGIGDNnZ2dnUVZ5qednZ2d@giganews.com>,
> Tim Wescott<tim@seemywebsite.com> wrote:
>> On Mon, 21 Jan 2013 00:58:22 -0800, raypsi wrote:
>>
>>> A costumer would be not so bright to spend hundreds of USD
>>> on a bunch of PCB's that don't come out right. PCB123's minimum cost is
>>> $109 for 2pcs of 9 square inch board. You must be from a third world
>>> backwater country if you think that is a high price.
>>
>> That's a much higher price than BatchPCB, which charges $2.50/sqin + $10/
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>> $109/board is too much for my hobby budget, although I routinely pay that
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>
> Yep.. $109 seems a bit steep, unless you need them really fast.
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>
> Oshpark charges $5/sqin for 3pcs, for sharp looking boards.
> FR4 .063" 2-layers 1oz copper. purple boards, gold flashed.
> About a 12-14 day turnaround. I think they are made in the US.
> They also do 4 layer boards for $10/sqin.
>
> Thre are several Chinese shops that will do 10pcs of 5x5cm boards
> for ~$10, larger sizes for a bit more. About a month turnaround.
> Seeed Studio, and a couple of others.
>
>
> Lets see.. for a 9sqin board..
>
> PCB123
> $109/2 = $54.50 per board
>
> BatchPCB
> 9sqin x $2.50 = $22.50 per board
> +$10 order = $32.50 for first board
> $55 for 2 boards.
>
> Oshpark
> 9sqin x $5 = $45.
> $45/3 = $15 per board
>

> So PCB123 is ~2x the price of BatchPCB, and>3x the price of Oshpark.

What was the turn around time at PCB123? Not everyone can wait a month or more for prototype boards.

I had a muffed delivery from Sunstone once that almost sank a project. Turn around is important for many projects.

--

Rick

50. Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-28 03:07:51 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kgmhkd$rq3$1@dont-email.me>
Source record: 29
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

I am working on a simulation for a loop antenna in LTspice and I can't figure out why the signal strength features are what they are. The model uses a pair of loosely coupled inductors to model the transmitter and antenna loop with a separate pair of tightly coupled inductors to model the coupling transformer. A cap on the primary circuit is the tuning cap and a cap on the secondary is parasitic effects of the circuit board leading to the inputs on the IC.

There is a resonance near the frequency I would expect, but it is not so close actually. I can't figure why it is about 5% off. There is a second resonance fairly high up that I can't figure at all. None of the component values seem to combine appropriately to produce this peak. When looking at the tuning capacitor voltage there is an anti-resonance that is exactly at the frequency corresponding to the secondary resonance with the transformer and the parasitic capacitance. That makes sense to me, but it is pretty much the only part that jibes with what I can figure out.

I have uploaded a zip file with the schematic and a measurement file.

http://arius.com/temp/Antenna_trans_LTspice.zip

--

Rick

51. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-28 04:40:57 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <kgmn2i$da8$1@dont-email.me>
Source record: 32
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

I expect if you reflect the CT secondary stuff (don't forget Lsec) back to
the primary, your answer will appear. Offhand I can't reason out which
sum of L and C makes the resonance, but it's a four pole series-parallel
resonant circuit, analysis should lay it bare.

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com

"rickman" <gnuarm@gmail.com> wrote in message
news:kgmhkd$rq3$1@dont-email.me...
>I am working on a simulation for a loop antenna in LTspice and I can't
>figure out why the signal strength features are what they are. The model
>uses a pair of loosely coupled inductors to model the transmitter and
>antenna loop with a separate pair of tightly coupled inductors to model
>the coupling transformer. A cap on the primary circuit is the tuning cap
>and a cap on the secondary is parasitic effects of the circuit board
>leading to the inputs on the IC.
>
> There is a resonance near the frequency I would expect, but it is not so
> close actually. I can't figure why it is about 5% off. There is a
> second resonance fairly high up that I can't figure at all. None of the
> component values seem to combine appropriately to produce this peak.
> When looking at the tuning capacitor voltage there is an anti-resonance
> that is exactly at the frequency corresponding to the secondary
> resonance with the transformer and the parasitic capacitance. That
> makes sense to me, but it is pretty much the only part that jibes with
> what I can figure out.
>
> I have uploaded a zip file with the schematic and a measurement file.
>
> http://arius.com/temp/Antenna_trans_LTspice.zip
>
> --
>
> Rick

52. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-28 23:11:11 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kgoo4e$ts5$1@dont-email.me>
Source record: 33
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 2/27/2013 11:40 PM, Tim Williams wrote:
> I expect if you reflect the CT secondary stuff (don't forget Lsec) back to
> the primary, your answer will appear. Offhand I can't reason out which
> sum of L and C makes the resonance, but it's a four pole series-parallel
> resonant circuit, analysis should lay it bare.

Are you sure about this? When you say to reflect the secondary back to
the primary that means the primary inductance would be doubled? I
believe the coupling of the two coils means they are one and the same
for the purposes of the circuit analysis, no?

You can't reason which sum of L and C makes the resonance and I can't
either. The calculation is off by about 5% and I can't explain that. I
can explain a null at about 290 kHz. That is the resonance of the
secondary with the secondary capacitance. I can't explain the other
peak at 363 kHz at all. A higher frequency would imply a smaller L
and/or C. How do you combine them to produce that? Consider the two
caps to be in series???

--

Rick

53. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-02-28 23:40:06 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <kgopqd$5lu$1@dont-email.me>
Source record: 34
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

"rickman" <gnuarm@gmail.com> wrote in message
news:kgoo4e$ts5$1@dont-email.me...
> A higher frequency would imply a smaller L and/or C. How do you combine
> them to produce that? Consider the two caps to be in series???

Sure. If you bring the 10p over to the primary, it looks like 10p * (30m / 5u), or whatever the ratio was (I don't have it in front of me now), in parallel with the primary. (I misspoke earlier, you can safely ignore Ls, because k = 1. There's no flux which is not common to both windings.)

Inductors effectively in parallel also increase the expected resonant frequency. If you have this,

```
. L1
. +-----UUU--+------+------+
. | + | | |
. ( Vsrc ) === C > R 3 L2
. | - | > 3
. | | | |
. +----------+------+------+
. _|_ GND
```

You might expect the resonant frequency is L2 + C, but it's actually (L1 || L2) = Leq. If L1 is not substantially larger than L2, the resonant frequency will be pulled higher.

Incidentally, don't forget to include loss components. I didn't see any explict R on the schematic. I didn't check if you set the LTSpice default parasitic ESR (cap), or DCR or EPR (coil) on the components. Besides parasitic losses, your signal is going *somewhere*, and that "where" consumes power!

The actual transmitter is most certainly not a perfect current source inductor, nor is the receiver lossless. This simulation has no expression for radiation in any direction that's not directly between the two antennas: if all the power transmitted by the current source is reflected back, even though it's through a 0.1% coupling coefficient, it has to go somewhere. If it's coming back out the antenna, and it's not being burned in the "transformer", it's coming back into the transmitter. This is at odds with reality, where a 100% reflective antenna doesn't magically smoke a distant transmitter, it simply reflects 99.9% back into space. The transmitter hardly knows.

In this example, if you set R very large, you'll see ever more voltage on the output, and ever more current draw from Vsrc. You can mitigate this

by increasing L1 still further, but the point is, if the source and load (R) aren't matched in some fashion, the power will reflect back to the transmitter and cause problems (in this case, power reflected back in-phase causes excessive current draw; in the CCS case, reflected power in-phase causes minimal voltage generation and little power transmission).

Power is always coming and going somewhere, and if you happen to forget this fact, it'll reflect back and zap you in the butt sooner or later!

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com

54. Crossposting Permitted to rec.radio.amateur.moderated

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-01 13:47:34 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/moderated/crossposting-1-1362145654@panix.com>
Source record: 35
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.amateur.space,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/moderated/crossposting
Revision: 1.2 2011/11/02 04:08:53
Posting-Frequency: posted quarterly
URL: http://www.panix.com/~rram/usenet/rram/index.html

Changes followed by "|".

After a 30-day public discussion and feedback period to gauge reader
opinions in March of 2009:

http://groups.google.com/group/rec.radio.amateur.moderated/browse_thread/thread/d7d337db35
f23326

the rec.radio.amateur.moderated Moderation Team had decided to consider |
amending its charter, and permit limited simultaneous crossposting to
rec.radio.amateur.moderated and one other unmoderated
amateur-radio-related discussion newsgroup. After a successful trial |
period (90 days, through early July 2009), we decided to adopt this |
change permanently. |

Approved rec.radio.amateur.* newsgroups are those that are currently
listed in the latest version of the "List of Big Eight Newsgroups" which
is crossposted monthly to news.announce.newgroups, news.groups, and
news.lists.misc.

Approved alt.radio.amateur.* and alt.ham-radio.* newsgroups are those
that have been created consistent with the suggestions in "So You Want
to Create an Alt Newsgroup" at:

http://www.faqs.org/faqs/alt-creation-guide/

Approved regional hierarchy newsgroups are those that contain either
"radio.amateur" or "ham-radio" in their names, including
uk.radio.amateur and aus.radio.amateur.misc.

We will make every reasonable effort to keep our list of approved
newsgroups up-to-date. In case we have overlooked any, and a submission
is rejected in error as a result, the rejected submitter can E-mail us
at our administrative contact address (in the signature at the bottom of
this article, and the default Reply-To for the rejection message)
requesting that it be added, and that the article be approved. We may
still choose to reject articles crossposted to any alt.* newsgroup with
an inappropriate name, including obscene language, embedded
name-calling, or encouragement of unlawful conduct.
```

Please direct any comments, questions, or criticisms to
rec-radio-amateur-moderated-request@panix.com.

55. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-01 16:43:59 UTC
From: legg <legg@nospam.magma.ca>
Message-ID: <6tl1j8dno98p73qikmfqmvhlco12699u5m@4ax.com>
Source record: 36
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Wed, 27 Feb 2013 22:07:51 -0500, rickman <gnuarm@gmail.com> wrote:

<snip>
>There is a resonance near the frequency I would expect, but it is not so
>close actually. I can't figure why it is about 5% off. There is a
>second resonance fairly high up that I can't figure at all. None of the
>component values seem to combine appropriately to produce this peak.
<snip>

Pulling out the old reactance paper, there are a couple of expected
interactions using the values present:

Around 50KHz (89.42uH+48uH) with 50.42nF (L3+L1) with C1
Around 290KHz (89.42uH+48uH) with 6.25nF (L3+L1) with C2*N^2
Around 360KHz 48uH with 6.25nF L1 with C2*N^2
nL1/nL2=N=25

The mid-resonance is a dip or rejection.

What's the issue?

RL

56. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-01 17:39:07 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <RdSdnf4Xl-8meq3MnZ2dnUVZ5qKdnZ2d@giganews.com>
Source record: 49
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Wed, 27 Feb 2013 22:07:51 -0500, rickman wrote:

> I am working on a simulation for a loop antenna in LTspice and I can't
> figure out why the signal strength features are what they are. The
> model uses a pair of loosely coupled inductors to model the transmitter
> and antenna loop with a separate pair of tightly coupled inductors to
> model the coupling transformer. A cap on the primary circuit is the
> tuning cap and a cap on the secondary is parasitic effects of the
> circuit board leading to the inputs on the IC.
>
> There is a resonance near the frequency I would expect, but it is not so
> close actually. I can't figure why it is about 5% off. There is a
> second resonance fairly high up that I can't figure at all. None of the
> component values seem to combine appropriately to produce this peak.
> When looking at the tuning capacitor voltage there is an anti-resonance
> that is exactly at the frequency corresponding to the secondary
> resonance with the transformer and the parasitic capacitance. That
> makes sense to me, but it is pretty much the only part that jibes with
> what I can figure out.
>
> I have uploaded a zip file with the schematic and a measurement file.
>
> http://arius.com/temp/Antenna_trans_LTspice.zip

Re-read what Tim Williams said.

A way to translate what he's saying into your simulation is to include the radiation resistance of the antenna into your simulation, and reduce the coupling -- 1e-6 is probably good enough. I am, frankly, not sure where this is best put in your radiation resistance, but just increasing the series resistance on L3 is probably sufficient; putting it in as a parallel resistance in L3 is probably more accurate, but would be more useful as a way of separating the radiation resistance effect from the winding resistance of L3 (which is, I assume, where your figure comes from).

Do you have the ability to measure the Q of your antenna as built, and compare it to the Q calculated from the known L, C, and winding resistance? That should give you a good estimate of the radiation resistance, or at least radiation resistance + other losses.

--
My liberal friends think I'm a conservative kook.
My conservative friends think I'm a liberal kook.
Why am I not happy that they have found common ground?

Tim Wescott, Communications, Control, Circuits & Software
http://www.wescottdesign.com

57. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-01 19:04:32 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kgr44f$5lr$7@dont-email.me>
Source record: 61
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 2/28/2013 6:40 PM, Tim Williams wrote:
> "rickman"<gnuarm@gmail.com> wrote in message
> news:kgoo4e$ts5$1@dont-email.me...
>> A higher frequency would imply a smaller L and/or C. How do you combine
>> them to produce that? Consider the two caps to be in series???
>
> Sure. If you bring the 10p over to the primary, it looks like 10p * (30m
> / 5u), or whatever the ratio was (I don't have it in front of me now), in
> parallel with the primary. (I misspoke earlier, you can safely ignore Ls,
> because k = 1. There's no flux which is not common to both windings.)

Reflecting the capacitance through the transformer changes it by the square of the turns ratio assuming the coupling coefficient is sufficiently high. I am simulating K at 1.

This is also true for the inductance, but in the opposite manner. So going from the 25 turn side to the 1 turn side, the effective capacitance is multiplied by 625 and the effective inductance (or resistance) is divided by 625. In fact, in LTspice you indicate the turns ratio by setting the inductance of the two coils by this ratio.

I see now that the reflected secondary capacitance is in parallel with the primary, rather than in parallel with the primary capacitor. That explains a lot... I'll have to hit the books to see how to calculate this new arrangement. I found a very similar circuit in the Radiotron Designer's Handbook. In section 4.6(iv)E on page 152 they show a series-parallel combination that only differs in the placement of the resistance in the parallel circuit. It need to be placed inline with the inductor... or is placing it parallel correct since this is the reflected resistance of the secondary? I'll have to cogitate on that a bit. I'm thinking it would be properly placed inline with the capacitor in the reflection since it is essentially inline in the secondary. Either way I expect it will have little impact on the resonant frequency and I can just toss all the resistances simplifying the math.

I do see one thing immediately. The null in Vcap I see is explained by the parallel resonance of the secondary cap with the secondary inductor. If you reflect that cap back to the primary in parallel with the primary inductor (resonating at the same frequency) it explains the null in the capacitor C1 voltage I see. C2' (reflected) and L1 make a parallel resonance with a high impedance dropping the primary cap current and voltage to a null. This null is calculated accurately.

What I need to do is change the impedance equation from Radiotron to one indicating the voltage at Vout relative to the input signal. I think I

can do that by treating the circuit as a voltage divider taking the ratio of the impedance at the input versus the impedance at the primary coil. No?

> Inductors effectively in parallel also increase the expected resonant
> frequency. If you have this,
>
> . L1
> . +-----UUU--+------+------+
> . | + | | |
> . (Vsrc) === C > R 3 L2
> . | - | > 3
> . | | | |
> . +----------+------+------+
> . _|_ GND
>
> You might expect the resonant frequency is L2 + C, but it's actually (L1
> || L2) = Leq. If L1 is not substantially larger than L2, the resonant
> frequency will be pulled higher.

I see, L1 and L2 are in parallel because the impedance of Vsrc is very low. That is not the circuit I am simulating however. The loop of the antenna and the loop of the inductor are in series along with the primary capacitor. I'm not sure what the resistor is intended to represent, perhaps transformer losses? The resistance of L1 was added to the simulation model along with the resistance of the secondary coil which you have not shown... I think. It seems to me you have left out the tuning capacitor on the primary.

> Incidentally, don't forget to include loss components. I didn't see any
> explict R on the schematic. I didn't check if you set the LTSpice default
> parasitic ESR (cap), or DCR or EPR (coil) on the components. Besides
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> in the "transformer", it's coming back into the transmitter. This is at
> odds with reality, where a 100% reflective antenna doesn't magically smoke
> a distant transmitter, it simply reflects 99.9% back into space. The
> transmitter hardly knows.

Interesting point. My primary goal with this is to simulate the resonance of the tuning so I can understand how to best tune the circuit. In many of the simulations I run the Q ends up being high enough that a very small drift in the parasitic capacitance on the secondary detunes the antenna and drops the signal level. It sounds

like there are other losses that will bring the Q much lower.

I would also like to have some idea of the signal strength to expect. My understanding is that the radiation resistance of loop antennas is pretty low. So not much energy will be radiated out. No?

You make it sound as if in the simulation, even with a small coupling coefficient all the energy from antenna inductor will still couple back into the transmitter inductor regardless of the K value. Do I misunderstand you? It seems to result in the opposite, minimizing this back coupling. Or are you saying that the simulation needs to simulate the radiation resistance to show radiated losses?

> In this example, if you set R very large, you'll see ever more voltage on
> the output, and ever more current draw from Vsrc. You can mitigate this
> by increasing L1 still further, but the point is, if the source and load
> (R) aren't matched in some fashion, the power will reflect back to the
> transmitter and cause problems (in this case, power reflected back
> in-phase causes excessive current draw; in the CCS case, reflected power
> in-phase causes minimal voltage generation and little power transmission).
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> Power is always coming and going somewhere, and if you happen to forget
> this fact, it'll reflect back and zap you in the butt sooner or later!
>
> Tim

Actually, my goal was to build the receiver and I realized that my design would require the largest signal I could get from the antenna. I never realized I would end up having to learn quite so much about antenna design.

I've been planning to create a PCB with lots of options so I can test a number of configurations. Nothing about the simulation makes me doubt the utility of this idea.

One thing that continues to bug me is that nothing I have seen gives me a hint on how to factor in the distributed capacitance of the antenna shield. I am using RG6 with 16 pF/Ft and likely will end up with 100 foot of coax total. At some point I'll just have to make some measurements and see what the real world does.

--

Rick

58. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-02 01:53:07 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <kgrlvprgk1@dont-email.me>
Source record: 62
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

You'll be much better off simply using the conventional radio approach than trying to simulate everything, especially when circuit equivalents are nebulous like this.

After all, if you can't quite tell what it *should* look like, how would you know if you could implement your model once you've found a satisfactory result?

What kind of antenna are you looking at, loop? The first thing to know about a loop is, if it's a very small loop (I'm guessing, at this frequency, it is), its radiation resistance is very low, meaning, you can treat it as a nearly pure inductance (Q > 10 I think is typical), and its bandwidth (even with a matched load) will be correspondingly narrow.

The nature of the incoming signal could be modeled as a voltage or current source; how doesn't really matter, because it isn't really either, it's a power source that couples in. Again, you don't have voltage without current and vice versa, it's all about power flow, and the matching that allows the power to flow.

Since the loop is inductive, your first priority is to resonate it with a capacitor at the desired frequency. This will require a very precise value, and even for a single frequency, may require a variable capacitor to account for manufacturing tolerances. In the AM BCB, a Q of 10 gets you 50-160kHz bandwidth, so you only get a few channels for any given tuning position. And if the Q is higher, you get even fewer.

Now that you've got a high Q resonant tank, you can do two things: couple into the voltage across the capacitor, or the current through the inductor. You need only a small fraction of either, because the Q is still going to be large. This can be arranged with a voltage divider (usually the capacitor is split into a huge hunk and a small variable part, e.g., 300pF variable + 10nF, output from across the 10nF), a transformer (a potential transformer across the cap, or a current transformer in series with the inductor), an inductive pickup (the big loop carries lots of volts, but you only need a few, so a much smaller loop can be placed inside the big loop), an impractically large inductor (like in my example circuit, which models radiation resistance as a parallel equivalent), etc. Whatever the case, you need to match transmission line impedance (e.g., 50 ohms) to radiation resistance (whichever series or parallel equivalent you have).

Once you get the signal into a transmission line, with a reasonable match (Z ~= Z_line, or alternately, SWR ~= 1), you can do whatever you want with it. Put it into an amplifier (don't forget to match it, too), etc. Yes,

you're going to have funny behavior at other frequencies, and if you're concerned about those frequencies, you'll have to choose the coupling circuit and adjustable (or selectable) components accordingly. But for the most part, you completely ignore any frequency that you aren't tuning for, usually enforcing that concept by inserting filters to reject any stragglers.

Example: suppose you have a loop of 5uH and need to tune it to 500kHz. It has a reactance of 15.7 ohms. Suppose further it has Q = 20. The ESR (not counting DCR and skin effect) is X_L / Q, or 0.78 ohms; alternately, the EPR is X_L * Q, or 314 ohms. The capacitor required is 20.3nF. If we use a current transformer to match to a 50 ohm line, it needs an impedance ratio of 1:64, or a turns ratio of 1:8. If we use a voltage transformer, it's of course 8:1. (A capacitor divider is unsuitable for resonant impedances less than line impedance, since it can only divide the impedance down. If the inductance were a lot larger, it could be used.) To a rough approximation, a smaller inductive loop, of 1/8 diameter of the larger, I think, would also work.

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com

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> measurements and see what the real world does.
>
> --
>
> Rick

59. Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-03 04:00:49 UTC
From: Frank <fatherhaskell@yahoo.com>
Message-ID: <ddfead95-dfd5-4c26-9704-d852a0b4ba36@j2g2000yqj.googlegroups.com>
Source record: 63

Clamshell-looking enclosure on small AC power transformers. Magnetic shielding to prevent interference with nearby wires?

60. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-04 00:39:17 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <5133ed35$0$52221$c3e8da3$92d0a893@news.astraweb.com>
Source record: 64

On Sat, 02 Mar 2013 20:00:49 -0800, Frank wrote:

> Clamshell-looking enclosure on small AC power transformers. Magnetic
> shielding to prevent interference with nearby wires?

Magnetic fields are hard to shield. In a power transformer, it would be more effective to use more iron in the core and more turns in the windings to reduce the flux density. While a steel shell probably provides a limited amount of shielding, it's more likely there to provide mechanical protection. At the same time, it gives a better appearance.

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

61. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-04 02:49:59 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1303032144190.22741@darkstar.example.org>
Source record: 65

On Sun, 4 Mar 2013, Jim Mueller wrote:

> On Sat, 02 Mar 2013 20:00:49 -0800, Frank wrote:
>
>> Clamshell-looking enclosure on small AC power transformers. Magnetic
>> shielding to prevent interference with nearby wires?
>
> Magnetic fields are hard to shield. In a power transformer, it would be
> more effective to use more iron in the core and more turns in the
> windings to reduce the flux density. While a steel shell probably
> provides a limited amount of shielding, it's more likely there to provide
> mechanical protection. At the same time, it gives a better appearance.
>
Maybe protect the windings, too.

Definitely, nobody specifies between just a frame transformer and a metal cased one. I'd honestly never given it any thought. Bigger transformers often seem to be more likely to be cased in metal, so structural support may apply. I don'thave it handy, but that one Hammond catalog I got decades ago I think offered the same voltage/amps in open frame and metal enclosed versions, which would add more to "looks" than anything else.

I have heard of the leads breaking off open frame transofrmers, right where they come off the winding, which isn't a good thing. Any metal cased transformer, I don't recall that happening, which may mean there is some sort of terminal block inside, rather than just bringing out the wire. Certainly I've seen open frame transformers where the wire from the windings are brought to terminal points, which helps protect the winding wire. it also exposes the line voltage going into that transformer, which in some cases can't be a good thing.

Michael

62. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-04 05:43:28 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kh1c8grtf1@dont-email.me>
Source record: 66
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/1/2013 11:43 AM, legg wrote:
> On Wed, 27 Feb 2013 22:07:51 -0500, rickman<gnuarm@gmail.com> wrote:
>
> <snip>
>> There is a resonance near the frequency I would expect, but it is not so
>> close actually. I can't figure why it is about 5% off. There is a
>> second resonance fairly high up that I can't figure at all. None of the
>> component values seem to combine appropriately to produce this peak.
> <snip>
>
> Pulling out the old reactance paper, there are a couple of expected
> interactions using the values present:
>
> Around 50KHz (89.42uH+48uH) with 50.42nF (L3+L1) with C1
> Around 290KHz (89.42uH+48uH) with 6.25nF (L3+L1) with C2*N^2
> Around 360KHz 48uH with 6.25nF L1 with C2*N^2
> nL1/nL2=N=25
>
> The mid-resonance is a dip or rejection.
>
> What's the issue?

290 kHz matches the calculations you just gave. But 290 kHz is the null
(or dip as you call it) from C2 and L2 (or L1 and C2 reflected with N^2).

I thought I wasn't getting the 60 kHz resonance, but I was mistakenly
adding the two capacitances together. So that is closer. Using L3+L1
with C1 I get 60.46 kHz while it is measured at 60 dead on in
simulation. That's nearly a 1% error.

I solved the equations finally. I found some info on the impedance of
series and parallel circuits. With that info I wrote the equation for
the ratio of Vout/Vin and found the roots. Turns out it is not so bad.
The equation is a fourth order, but it has no x^3 or x^1 terms and so
is actually a quadratic of x^2. Solving the quadratic gives the exact
figures for 60 kHz and 393 kHz peaks. Since this is from taking the
square root of x^2, there are also solutions at the negative values... duh!

Reflecting C2 through the transformer to create C2', the two nulls I
found can be calculated by the resonance of L1 and C2' (290 kHz null on
C1) or L1 with C1 and C2' (96500 Hz null on L3).

--

Rick

63. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-04 07:13:17 UTC
From: Frank <fatherhaskell@yahoo.com>
Message-ID: <5c16fb40-f3ab-41fc-aacb-9468e7cdfa20@f5g2000yqp.googlegroups.com>
Source record: 67

On Mar 3, 7:39 pm, Jim Mueller <wrongn...@nospam.com> wrote:
> On Sat, 02 Mar 2013 20:00:49 -0800, Frank wrote:
> > Clamshell-looking enclosure on small AC power transformers. Magnetic
> > shielding to prevent interference with nearby wires?
>
> Magnetic fields are hard to shield. In a power transformer, it would be
> more effective to use more iron in the core and more turns in the
> windings to reduce the flux density. While a steel shell probably
> provides a limited amount of shielding, it's more likely there to provide
> mechanical protection. At the same time, it gives a better appearance.

Surprised no one's made them gold plated.

64. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-04 07:14:50 UTC
From: Frank <fatherhaskell@yahoo.com>
Message-ID: <e60b5924-a7c6-41ac-acbf-4cd3174fd0ce@f6g2000yqm.googlegroups.com>
Source record: 68

On Mar 3, 9:49 pm, Michael Black <et...@ncf.ca> wrote:
> On Sun, 4 Mar 2013, Jim Mueller wrote:
> > On Sat, 02 Mar 2013 20:00:49 -0800, Frank wrote:
>
> >> Clamshell-looking enclosure on small AC power transformers. Magnetic
> >> shielding to prevent interference with nearby wires?
>
> > Magnetic fields are hard to shield. In a power transformer, it would be
> > more effective to use more iron in the core and more turns in the
> > windings to reduce the flux density. While a steel shell probably
> > provides a limited amount of shielding, it's more likely there to provide
> > mechanical protection. At the same time, it gives a better appearance.
>
> Maybe protect the windings, too.
>
> Definitely, nobody specifies between just a frame transformer and a metal
> cased one. I'd honestly never given it any thought. Bigger transformers
> often seem to be more likely to be cased in metal, so structural support
> may apply. I don'thave it handy, but that one Hammond catalog I got
> decades ago I think offered the same voltage/amps in open frame and metal
> enclosed versions, which would add more to "looks" than anything else.
>
> I have heard of the leads breaking off open frame transofrmers, right
> where they come off the winding, which isn't a good thing. Any metal
> cased transformer, I don't recall that happening, which may mean there is
> some sort of terminal block inside, rather than just bringing out the
> wire. Certainly I've seen open frame transformers where the wire from the
> windings are brought to terminal points, which helps protect the winding
> wire. it also exposes the line voltage going into that transformer, which
> in some cases can't be a good thing.
>
>   Michael

Or if it's installed in a perforated enclosure. Paper and wire
varnish
don't protect as well against sharp objects.

65. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-04 20:23:19 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <513502b7$0$43813$c3e8da3$9deca2c3@news.astraweb.com>
Source record: 69

On Sun, 03 Mar 2013 23:13:17 -0800, Frank wrote:

> On Mar 3, 7:39 pm, Jim Mueller <wrongn...@nospam.com> wrote:
>> On Sat, 02 Mar 2013 20:00:49 -0800, Frank wrote:
>> > Clamshell-looking enclosure on small AC power transformers. Magnetic
>> > shielding to prevent interference with nearby wires?
>>
>> Magnetic fields are hard to shield. In a power transformer, it would
>> be more effective to use more iron in the core and more turns in the
>> windings to reduce the flux density. While a steel shell probably
>> provides a limited amount of shielding, it's more likely there to
>> provide mechanical protection. At the same time, it gives a better
>> appearance.
>
> Surprised no one's made them gold plated.

I have seen chrome in imported equipment where everything is chrome
plated. I've also seen some with a finish that looks sort of gold
colored. Perhaps it is some kind of zinc chromate coating.

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

66. Softcore lesbo aciton on the bed

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-06 18:44:43 UTC
From: Iran <tamarmadgecay@gmail.com>
Message-ID: <8345ab70-6ca2-4254-bf57-51fed893dc50@googlegroups.com>
Source record: 70

Softcore lesbo aciton on the bed http://t.co/P5PVUr5B

67. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-06 19:00:57 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kh83nluqo1@dont-email.me>
Source record: 71
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/1/2013 8:53 PM, Tim Williams wrote:
> You'll be much better off simply using the conventional radio approach
> than trying to simulate everything, especially when circuit equivalents
> are nebulous like this.

I don't know what you mean by the "conventional radio approach".

> After all, if you can't quite tell what it *should* look like, how would
> you know if you could implement your model once you've found a
> satisfactory result?

I was simulating a specific circuit for a specific purpose. I got the
answer I was looking for.

> What kind of antenna are you looking at, loop? The first thing to know
> about a loop is, if it's a very small loop (I'm guessing, at this
> frequency, it is), its radiation resistance is very low, meaning, you can
> treat it as a nearly pure inductance (Q> 10 I think is typical), and its
> bandwidth (even with a matched load) will be correspondingly narrow.

Yes, I plan to use a shielded loop. I have found some contradictory
info on the effectiveness of the "shield". One reference seems to have
measurements that show it is primarily E-field coupled in the longer
distance portion of the near-field.

I am aware of the low radiation resistance and have not included that
factor in my simulation. The Q of just the antenna loop is around 100
as calculated from the ratio of reactance to resistance.

> The nature of the incoming signal could be modeled as a voltage or current
> source; how doesn't really matter, because it isn't really either, it's a
> power source that couples in. Again, you don't have voltage without
> current and vice versa, it's all about power flow, and the matching that
> allows the power to flow.

A friend in a loop antenna Yahoo group suggested the use of the
transformer coupling with a low k to model the signal reception.

> Since the loop is inductive, your first priority is to resonate it with a
> capacitor at the desired frequency. This will require a very precise
> value, and even for a single frequency, may require a variable capacitor
> to account for manufacturing tolerances. In the AM BCB, a Q of 10 gets
> you 50-160kHz bandwidth, so you only get a few channels for any given
> tuning position. And if the Q is higher, you get even fewer.

Yes, that is loop antenna 101 I think. It was when I added a coupling transformer with 100:1 turns ratio that I was told I needed to consider the parasitics. I have found it is not useful to go much above 25 or 33:1 on the turns ratio. I am receiving a single frequency, 60 kHz. There is no need for a wide bandwidth. Ultimately, I prefer a Q of > 100 for the higher gain. If it gets too high, the off tuning by variations (drift) in the parasitic capacitance affects the antenna gain appreciably.

> Now that you've got a high Q resonant tank, you can do two things: couple
> into the voltage across the capacitor, or the current through the
> inductor. You need only a small fraction of either, because the Q is
> still going to be large. This can be arranged with a voltage divider
> (usually the capacitor is split into a huge hunk and a small variable
> part, e.g., 300pF variable + 10nF, output from across the 10nF), a
> transformer (a potential transformer across the cap, or a current
> transformer in series with the inductor), an inductive pickup (the big
> loop carries lots of volts, but you only need a few, so a much smaller
> loop can be placed inside the big loop), an impractically large inductor
> (like in my example circuit, which models radiation resistance as a
> parallel equivalent), etc. Whatever the case, you need to match
> transmission line impedance (e.g., 50 ohms) to radiation resistance
> (whichever series or parallel equivalent you have).

Transmission line? What transmission line? The antenna is directly connected to the receiver which has a very high input impedance. Why do I need to consider radiation resistance? I have not read that anywhere.

> Once you get the signal into a transmission line, with a reasonable match
> (Z ~= Z_line, or alternately, SWR ~= 1), you can do whatever you want with
> it. Put it into an amplifier (don't forget to match it, too), etc. Yes,
> you're going to have funny behavior at other frequencies, and if you're
> concerned about those frequencies, you'll have to choose the coupling
> circuit and adjustable (or selectable) components accordingly. But for
> the most part, you completely ignore any frequency that you aren't tuning
> for, usually enforcing that concept by inserting filters to reject any
> stragglers.
>
> Example: suppose you have a loop of 5uH and need to tune it to 500kHz. It
> has a reactance of 15.7 ohms. Suppose further it has Q = 20. The ESR
> (not counting DCR and skin effect) is X_L / Q, or 0.78 ohms; alternately,
> the EPR is X_L * Q, or 314 ohms. The capacitor required is 20.3nF. If we
> use a current transformer to match to a 50 ohm line, it needs an impedance
> ratio of 1:64, or a turns ratio of 1:8. If we use a voltage transformer,
> it's of course 8:1. (A capacitor divider is unsuitable for resonant
> impedances less than line impedance, since it can only divide the
> impedance down. If the inductance were a lot larger, it could be used.)
> To a rough approximation, a smaller inductive loop, of 1/8 diameter of the
> larger, I think, would also work.

I'm not familiar with the concept of voltage transformer vs. current transformer. How do you mean that?

How did you get the 1:64 impedance ratio and the 1:8 turns ratio? I don't follow that. Are you saying the line impedance should match the ESR? Why exactly would it need to match the ESR?

--

Rick

68. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 01:13:25 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <kh8pgvnob1@dont-email.me>
Source record: 72
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

"rickman" <gnuarm@gmail.com> wrote in message
news:kh83nluqo1@dont-email.me...
> Yes, I plan to use a shielded loop. I have found some contradictory
> info on the effectiveness of the "shield". One reference seems to have
> measurements that show it is primarily E-field coupled in the longer
> distance portion of the near-field.

I trust this resource:
http://vk1od.net/antenna/shieldedloop/
He's got gobs of analytical articles.

> Yes, that is loop antenna 101 I think. It was when I added a coupling
> transformer with 100:1 turns ratio that I was told I needed to consider
> the parasitics. I have found it is not useful to go much above 25 or
> 33:1 on the turns ratio. I am receiving a single frequency, 60 kHz.
> There is no need for a wide bandwidth. Ultimately, I prefer a Q of >
> 100 for the higher gain. If it gets too high, the off tuning by
> variations (drift) in the parasitic capacitance affects the antenna gain
> appreciably.

High Q isn't the goal, high radiation resistance is -- the bigger the
loop, the better it couples with free space, until it's a wave length
around.

You can go ahead and make a teeny coil out of polished silver litz wire,
and push the Q up into the hundreds, but all you'll see is internal
resistance, hardly anything attributable to actual radiation. Since the
losses dominate over radiation, it makes a crappy antenna. But you know
that from looking at it -- it's a tiny lump, of course it's not going to
see the outside world.

It is true, however, that a small coil, with low losses, will have low
noise. AM radios rely on this, which is how they get away with tiny hunks
of ferrite for picking up radio.

Of course, it doesn't hurt that AM stations are 50kW or so, to push over
atmospheric noise.

> Transmission line? What transmission line? The antenna is directly
> connected to the receiver which has a very high input impedance. Why do
> I need to consider radiation resistance? I have not read that
> anywhere.

Ok, then you can merge the matching transformer, transmission line and
receiver input transformer into one -- an even larger stepup into whatever
impedance it's looking at (what's "very high", kohms? Mohms?) will get you

that much more SNR.

> I'm not familiar with the concept of voltage transformer vs. current
> transformer. How do you mean that?

Current transformer measures current (its winding is in series), potential transformer measures voltage (in parallel).

> How did you get the 1:64 impedance ratio and the 1:8 turns ratio? I
> don't follow that. Are you saying the line impedance should match the
> ESR? Why exactly would it need to match the ESR?

ESR (and Q) measured on the coil corresponds to radiation resistance (series equivalent) *plus* internal losses (also series equivalent). You can't separate the two components, so you can only get the best power match by the good old impedance theorem.

~1:64 is 50 ohm / 0.78 ohm, and N2/N1 = sqrt(Z2/Z1), or 8:1 turns ratio.

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com

69. Seeking New FAQ/Intro Maintainers for rec.radio.amateur.*

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 07:05:01 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/recruitment-1-1362639901@panix.com>
Source record: 73
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/recruitment
Revision: 1.2 2009/11/25 14:41:01
Posting-Frequency: posted quarterly
URL: http://www.faqs.org/faqs/radio/personal-intro/

Changes followed by "|".

The rec.radio.info newsgroup, first established in 1993, has been
recently revived by an active moderation team. We are currently seeking
suitable information, FAQ, and bulletin articles from the entire
rec.radio.* newsgroup hierarchy for simultaneous cross-posting to our
newsgroup.

We are seeking a replacement maintainer for the following information
bulletin formerly posted to rec.radio.amateur.* (and currently archived
at http://www.faqs.org/faqs/radio/personal-intro/ ):

radio/personal-intro
Subject: Guide to the rec.radio Newsgroups
Maintainer: jeffreyh@Hawaii.Edu (Jeffrey Herman)
Last Posted: 9 Nov 2001 06:18:17 GMT
Posting-Frequency: 15th of each month

One significant omission, requiring immediate updates, for this article |
is that it does not mention newer amateur radio newsgroups created since |
it was written, including: |

rec.radio.amateur.antenna |
rec.radio.amateur.boatanchors |
rec.radio.amateur.dx |
rec.radio.amateur.equipment |
rec.radio.amateur.homebrew |
rec.radio.amateur.moderated |
rec.radio.amateur.space |

We are willing to provide any technical support necessary to get this
article updated and automatically posted again at a regular interval.
This would include establishing contact with the original maintainer for
any necessary permissions. We would prefer to seek a new, dedicated
maintainer at this time, rather than start auto-posting the original
article ourselves.

For more information about our newsgroup, see:
```

http://www.panix.com/~rram/usenet/rri/index.html

Please direct any comments, questions, or criticisms to
rec-radio-info-request@panix.com.

70. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 07:15:40 UTC
From: Tauno Voipio <tauno.voipio@notused.fi.invalid>
Message-ID: <kh9eo7$691$1@dont-email.me>
Source record: 74
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 6.3.13 9:00 , rickman wrote:

>> Since the loop is inductive, your first priority is to resonate it with a
>> capacitor at the desired frequency. This will require a very precise
>> value, and even for a single frequency, may require a variable capacitor
>> to account for manufacturing tolerances. In the AM BCB, a Q of 10 gets
>> you 50-160kHz bandwidth, so you only get a few channels for any given
>> tuning position. And if the Q is higher, you get even fewer.
>
> Yes, that is loop antenna 101 I think. It was when I added a coupling
> transformer with 100:1 turns ratio that I was told I needed to consider
> the parasitics. I have found it is not useful to go much above 25 or
> 33:1 on the turns ratio. I am receiving a single frequency, 60 kHz.
> There is no need for a wide bandwidth. Ultimately, I prefer a Q of >
> 100 for the higher gain. If it gets too high, the off tuning by
> variations (drift) in the parasitic capacitance affects the antenna gain
> appreciably.

Please note that high Q will destroy the modulation sidebands on
the signal you're listening to.

In aviation, there are non-directional beacons which are transmitting
in a frequency around 300 kHz (1 km wavelength). The antennas cannot
obviously be of efficient length (250 m / 800 ft), so they are short
(20 m / 70 ft) force-tuned to the transmitting frequency. This creates
so high Q that the identification modulation sidebands for the customary
1050 Hz audio do not fit in, and the ID is modulated using 400 Hz audio.

--

Tauno Voipio, avionics engineer (also OH2UG)

71. SolderSmoke Podcast for Thursday 7 March 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 12:16:48 UTC
From: rec-radio-info-request@panix.com
Message-ID: <f46d04462bacd3b8c604d754ad96@google.com>
Source record: 75
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

```
SolderSmoke Podcasts

////////////////////////////////////////
SolderSmoke150`

Posted: 06 Mar 2013 12:06 PM PST

SolderSmoke issue 150
This posting includes a media file:
http://www.soldersmoke.com/soldersmoke150.mp3
```

72. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 14:30:58 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kha8a5$3db$1@dont-email.me>
Source record: 76
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/7/2013 2:15 AM, Tauno Voipio wrote:
> On 6.3.13 9:00 , rickman wrote:
>
>>> Since the loop is inductive, your first priority is to resonate it
>>> with a
>>> capacitor at the desired frequency. This will require a very precise
>>> value, and even for a single frequency, may require a variable capacitor
>>> to account for manufacturing tolerances. In the AM BCB, a Q of 10 gets
>>> you 50-160kHz bandwidth, so you only get a few channels for any given
>>> tuning position. And if the Q is higher, you get even fewer.
>>
>> Yes, that is loop antenna 101 I think. It was when I added a coupling
>> transformer with 100:1 turns ratio that I was told I needed to consider
>> the parasitics. I have found it is not useful to go much above 25 or
>> 33:1 on the turns ratio. I am receiving a single frequency, 60 kHz.
>> There is no need for a wide bandwidth. Ultimately, I prefer a Q of >
>> 100 for the higher gain. If it gets too high, the off tuning by
>> variations (drift) in the parasitic capacitance affects the antenna gain
>> appreciably.
>
> Please note that high Q will destroy the modulation sidebands on
> the signal you're listening to.

I appreciate the advice from everyone, but much of it is not in the
proper context and way off target. "High" Q is how high? Where are the
modulation sidebands? My point is that I have already considered this.
The modulation sidebands of this signal are on the order of low 10's
of Hz. This signal is modulated at a 1 bit per second rate. I will be
demodulating a 30 Hz sample rate. So a bandwidth of 100 Hz is plenty
which corresponds to a Q of around 500.

I said I was looking for a Q over 100, maybe I should have said a Q of a
bit over 100. By the time it gets to 300 it is to peaky to hold a tune
setting. That is the problem I am concerned with.

> In aviation, there are non-directional beacons which are transmitting
> in a frequency around 300 kHz (1 km wavelength). The antennas cannot
> obviously be of efficient length (250 m / 800 ft), so they are short
> (20 m / 70 ft) force-tuned to the transmitting frequency. This creates
> so high Q that the identification modulation sidebands for the customary
> 1050 Hz audio do not fit in, and the ID is modulated using 400 Hz audio.

Ok, but that is nothing like my application, receiving WWVB.

--

Rick

73. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 14:50:11 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <kha9e1$9qt$1@dont-email.me>
Source record: 77
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/6/2013 8:13 PM, Tim Williams wrote:
> "rickman"<gnuarm@gmail.com> wrote in message
> news:kh83nluqo1@dont-email.me...
>> Yes, I plan to use a shielded loop. I have found some contradictory
>> info on the effectiveness of the "shield". One reference seems to have
>> measurements that show it is primarily E-field coupled in the longer
>> distance portion of the near-field.
>
> I trust this resource:
> http://vk1od.net/antenna/shieldedloop/
> He's got gobs of analytical articles.

Yes, I've seen this page. Thanks.

>> Yes, that is loop antenna 101 I think. It was when I added a coupling
>> transformer with 100:1 turns ratio that I was told I needed to consider
>> the parasitics. I have found it is not useful to go much above 25 or
>> 33:1 on the turns ratio. I am receiving a single frequency, 60 kHz.
>> There is no need for a wide bandwidth. Ultimately, I prefer a Q of>
>> 100 for the higher gain. If it gets too high, the off tuning by
>> variations (drift) in the parasitic capacitance affects the antenna gain
>> appreciably.
>
> High Q isn't the goal, high radiation resistance is -- the bigger the
> loop, the better it couples with free space, until it's a wave length
> around.

I'm not clear on why you keep referring to radiation resistance for a
receiving antenna. Does this result in a larger received signal? I am
concerned with maximizing the voltage at the input to the receiver.

> You can go ahead and make a teeny coil out of polished silver litz wire,
> and push the Q up into the hundreds, but all you'll see is internal
> resistance, hardly anything attributable to actual radiation. Since the
> losses dominate over radiation, it makes a crappy antenna. But you know
> that from looking at it -- it's a tiny lump, of course it's not going to
> see the outside world.

I have no idea why you are talking about Litz wire and tiny coils. I
never said I was looking to maximize the Q. I said I wanted a Q of over
100. I should have said, slightly over 100. A higher Q clearly does
increase the voltage on the input in my simulations. Is there something
wrong with my simulations?

> It is true, however, that a small coil, with low losses, will have low
> noise. AM radios rely on this, which is how they get away with tiny hunks
> of ferrite for picking up radio.
>
> Of course, it doesn't hurt that AM stations are 50kW or so, to push over
> atmospheric noise.
>
>> Transmission line? What transmission line? The antenna is directly
>> connected to the receiver which has a very high input impedance. Why do
>> I need to consider radiation resistance? I have not read that
>> anywhere.
>
> Ok, then you can merge the matching transformer, transmission line and
> receiver input transformer into one -- an even larger stepup into whatever
> impedance it's looking at (what's "very high", kohms? Mohms?) will get you
> that much more SNR.

Yes, a higher stepup ratio gets larger signal up to a point. That point is determined by the parasitic capacitance of the receiver input. That capacitance is reflected back through the transformer and affects the antenna tuning. In my simulations it creates a filter with two resonances.

>> I'm not familiar with the concept of voltage transformer vs. current
>> transformer. How do you mean that?
>
> Current transformer measures current (its winding is in series), potential
> transformer measures voltage (in parallel).

Series and parallel with what? I'm not following this. I have trouble with series and parallel resonance, but I'm starting to get the concept. Sometimes it is hard to tell how a circuit is being stimulated.

>> How did you get the 1:64 impedance ratio and the 1:8 turns ratio? I
>> don't follow that. Are you saying the line impedance should match the
>> ESR? Why exactly would it need to match the ESR?
>
> ESR (and Q) measured on the coil corresponds to radiation resistance
> (series equivalent) *plus* internal losses (also series equivalent). You
> can't separate the two components, so you can only get the best power
> match by the good old impedance theorem.

Internal losses of what? How do you determine the internal losses?

> ~1:64 is 50 ohm / 0.78 ohm, and N2/N1 = sqrt(Z2/Z1), or 8:1 turns ratio.

Ok, so you were matching the hypothetical ESR to the hypothetical line impedance.

--

Rick

74. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 17:55:21 UTC
From: Tauno Voipio <tauno.voipio@notused.fi.invalid>
Message-ID: <khak7jcfa1@dont-email.me>
Source record: 78
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

```
On 7.3.13 4:30 , rickman wrote:
> On 3/7/2013 2:15 AM, Tauno Voipio wrote:
>> On 6.3.13 9:00 , rickman wrote:
>>
>>>> Since the loop is inductive, your first priority is to resonate it
>>>> with a
>>>> capacitor at the desired frequency. This will require a very precise
>>>> value, and even for a single frequency, may require a variable
>>>> capacitor
>>>> to account for manufacturing tolerances. In the AM BCB, a Q of 10 gets
>>>> you 50-160kHz bandwidth, so you only get a few channels for any given
>>>> tuning position. And if the Q is higher, you get even fewer.
>>>
>>> Yes, that is loop antenna 101 I think. It was when I added a coupling
>>> transformer with 100:1 turns ratio that I was told I needed to consider
>>> the parasitics. I have found it is not useful to go much above 25 or
>>> 33:1 on the turns ratio. I am receiving a single frequency, 60 kHz.
>>> There is no need for a wide bandwidth. Ultimately, I prefer a Q of >
>>> 100 for the higher gain. If it gets too high, the off tuning by
>>> variations (drift) in the parasitic capacitance affects the antenna gain
>>> appreciably.
>>
>> Please note that high Q will destroy the modulation sidebands on
>> the signal you're listening to.
>
> I appreciate the advice from everyone, but much of it is not in the
> proper context and way off target. "High" Q is how high? Where are the
> modulation sidebands? My point is that I have already considered this.
> The modulation sidebands of this signal are on the order of low 10's
> of Hz. This signal is modulated at a 1 bit per second rate. I will be
> demodulating a 30 Hz sample rate. So a bandwidth of 100 Hz is plenty
> which corresponds to a Q of around 500.
>
> I said I was looking for a Q over 100, maybe I should have said a Q of a
> bit over 100. By the time it gets to 300 it is to peaky to hold a tune
> setting. That is the problem I am concerned with.
>
>
>> In aviation, there are non-directional beacons which are transmitting
>> in a frequency around 300 kHz (1 km wavelength). The antennas cannot
>> obviously be of efficient length (250 m / 800 ft), so they are short
>> (20 m / 70 ft) force-tuned to the transmitting frequency. This creates
>> so high Q that the identification modulation sidebands for the customary
```

>> 1050 Hz audio do not fit in, and the ID is modulated using 400 Hz audio.
>
> Ok, but that is nothing like my application, receiving WWVB.
>

I'd still be wary of high Q. The antenna is, by definition, in close interaction with its surroundings, and a high-Q thing is quickly detuned.

At those low frequencies, the atmospheric and other outside noise is far larger than the internal noise of an amplifier, so in my opinion, the way to go is a loop tuned to 60 kHz with as low Q as easily comes without extra attenuation and a good pre-amplifier. The preamp can then contain a tuned interstage tank for interference suppression.

--

Tauno Voipio

75. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 18:11:03 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khal6rhni1@dont-email.me>
Source record: 79
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/7/2013 12:55 PM, Tauno Voipio wrote:
> On 7.3.13 4:30 , rickman wrote:
>>
>> Ok, but that is nothing like my application, receiving WWVB.
>>
>
> I'd still be wary of high Q. The antenna is, by definition, in close
> interaction with its surroundings, and a high-Q thing is quickly
> detuned.
>
> At those low frequencies, the atmospheric and other outside noise is
> far larger than the internal noise of an amplifier, so in my opinion,
> the way to go is a loop tuned to 60 kHz with as low Q as easily comes
> without extra attenuation and a good pre-amplifier. The preamp can
> then contain a tuned interstage tank for interference suppression.

I understand. But this is intended to be *very* low power and I haven't found an amp I can use that is in the low double digits uW power consumption range. I plan to use no amp and go straight to digital.

--

Rick

76. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 19:39:45 UTC
From: Jeff Liebermann <jeffl@cruzio.com>
Message-ID: <e4qhj85s8tuj4ja3jrnfe0ldss62q6pfbu@4ax.com>
Source record: 80
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Thu, 07 Mar 2013 13:11:03 -0500, rickman <gnuarm@gmail.com> wrote:

>I understand. But this is intended to be *very* low power and I haven't
>found an amp I can use that is in the low double digits uW power
>consumption range. I plan to use no amp and go straight to digital.

I don't think that's possible. Unless your input A/D converter can
operate in the microvolt region, it's going to have a difficult time
dealing with the low signal levels. Fortunately, WWVB is on-off
keying with no amplitude component, so there's no incentive to add an
AGC controlled input amplifier in order to maximize the A/D converters
dynamic range. Still, you need to work with something more than a few
bits above the noise level. Incidentally, after midnight, you WWVB
delivers about 100 uV/meter or more to continental US.
<http://tf.nist.gov/tf-cgi/wwvbmonitor_e.cgi> (Java required)
I've seen it strong enough that I can see the waveform on an
oscilloscope after a 60Khz passive filter.

As for bandwidth, the code is sent at 1 baud (1 bit/sec) which
produces about a 2Hz occupied bandwidth. Therefore, the maximum Q of
the antenna would need to be:
60Khz/ 2Hz = 30,000
before the antenna bandwidth becomes a problem.

Incidentally, while Googling away merrily, I found this on SPICE
models for a loop antenna. It's not quite in your xformer format, but
it might be useful:
<http://sidstation.loudet.org/antenna-theory-en.xhtml>
I won't pretend to understand what the author is doing until I read it
more carefully.

Incidentally, I used a WWVB code simulator driving a signal generator
to test my receiver:
<http://www.leapsecond.com/notes/wwvb2.htm>

If you're seriously into this, I suggest asking questions on the
time-nuts mailing list:
<https://www.febo.com/mailman/listinfo/time-nuts>

--
Jeff Liebermann jeffl@cruzio.com
150 Felker St #D http://www.LearnByDestroying.com
Santa Cruz CA 95060 http://802.11junk.com
Skype: JeffLiebermann AE6KS 831-336-2558

77. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-07 22:14:08 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <khb3cn$d6m$1@dont-email.me>
Source record: 81
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

"rickman" <gnuarm@gmail.com> wrote in message
news:kha9e1$9qt$1@dont-email.me...
>> High Q isn't the goal, high radiation resistance is -- the bigger the
>> loop, the better it couples with free space, until it's a wave length
>> around.
>
> I'm not clear on why you keep referring to radiation resistance for a
> receiving antenna. Does this result in a larger received signal? I am
> concerned with maximizing the voltage at the input to the receiver.

You're also not concerned about that -- you're concerned about maximizing SNR at the receiver.

A Q of a million will get you gobs of "gain", but if it doesn't couple into free space, it's only the thermal noise of the loss generating that signal.

An antenna with high (expressed as ESR) radiation resistance might have a modest Q, but gives far better SNR because it couples to free space.

Raw volts don't matter, you can always throw more amplifiers at it (as long as they don't corrupt the SNR also!).

> Yes, a higher stepup ratio gets larger signal up to a point. That point
> is determined by the parasitic capacitance of the receiver input. That
> capacitance is reflected back through the transformer and affects the
> antenna tuning. In my simulations it creates a filter with two
> resonances.

Oooh, capacitance! I like capacitance. Capacitance is easy to cancel...inductors are good at that. :)

What's a nearby inductor working against that capacitance? The current transformer in your simulation, if its inductance can be controlled, would be an excellent candidate. The circuit effectively becomes a double tuned interstage transformer, like,

http://www.jrmagnetics.com/rf/doubtune/doubccl_c.php
This is two resonators coupled with a cap, but any coupling method will do. Capacitive, magnetic (putting the coils end-to-end) or electromagnetic (coils side-by-side) coupling does equally well; normal arrangements have them all in phase, so in practice, unshielded coils will need smaller coupling capacitance than designed, etc.

If you line up that 10p resonance with the operating frequency, you should get gobs more gain. In fact, because the reactances cancel, the driven

impedance will be much higher than you were expecting, and so will the gain. The CT might go from, say, 1:8 up to, who knows, 1:20? 1:100?

The bandwidth of that coupling (not necessarily of the antenna itself, so they should be similar bandwidths) is determined by the coupling coefficient (in the coupled-inductors case, simply k) and Q of the components.

If your receiver datasheet specifies an equivalent input circuit, you might be able to estimate the equivalent loss and optimize gain.

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com

78. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 02:28:24 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khdh9v$2bb$1@dont-email.me>
Source record: 23
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/7/2013 5:14 PM, Tim Williams wrote:
> "rickman"<gnuarm@gmail.com> wrote in message
> news:kha9e1$9qt$1@dont-email.me...
>>> High Q isn't the goal, high radiation resistance is -- the bigger the
>>> loop, the better it couples with free space, until it's a wave length
>>> around.
>>
>> I'm not clear on why you keep referring to radiation resistance for a
>> receiving antenna. Does this result in a larger received signal? I am
>> concerned with maximizing the voltage at the input to the receiver.
>
> You're also not concerned about that -- you're concerned about maximizing
> SNR at the receiver.

SNR would be good, but I am concerned with maximizing the signal actually.

> A Q of a million will get you gobs of "gain", but if it doesn't couple
> into free space, it's only the thermal noise of the loss generating that
> signal.

I think you aren't reading what I am writing. I said I wanted a Q over
100, not 1 million. I don't get why you keep talking in hyperbole.
What you are describing is not even a tradeoff between signal strength
and SNR. If there is no coupling, there is no signal.

> An antenna with high (expressed as ESR) radiation resistance might have a
> modest Q, but gives far better SNR because it couples to free space.

I have not found anything to indicate this produces a better receive
antenna. I have a formula for the effective height of a loop antenna
which is what determines the received signal strength at the antenna. It
does not calculate the radiation resistance, it uses the coil parameters
and the wire resistance. Is that a wrong formula?

> Raw volts don't matter, you can always throw more amplifiers at it (as
> long as they don't corrupt the SNR also!).

Maybe you didn't read my other posts. I am not using an amplifier. I
am running the antenna and coupler output directly into a digital input.

>> Yes, a higher stepup ratio gets larger signal up to a point. That point
>> is determined by the parasitic capacitance of the receiver input. That
>> capacitance is reflected back through the transformer and affects the
>> antenna tuning. In my simulations it creates a filter with two
>> resonances.
>

> Oooh, capacitance! I like capacitance. Capacitance is easy to
> cancel...inductors are good at that. :)
>
> What's a nearby inductor working against that capacitance? The current
> transformer in your simulation, if its inductance can be controlled, would
> be an excellent candidate. The circuit effectively becomes a double tuned
> interstage transformer, like,
>
> http://www.jrmagnetics.com/rf/doubtune/doubccl_c.php
> This is two resonators coupled with a cap, but any coupling method will
> do. Capacitive, magnetic (putting the coils end-to-end) or
> electromagnetic (coils side-by-side) coupling does equally well; normal
> arrangements have them all in phase, so in practice, unshielded coils will
> need smaller coupling capacitance than designed, etc.
>
> If you line up that 10p resonance with the operating frequency, you should
> get gobs more gain. In fact, because the reactances cancel, the driven
> impedance will be much higher than you were expecting, and so will the
> gain. The CT might go from, say, 1:8 up to, who knows, 1:20? 1:100?
>
> The bandwidth of that coupling (not necessarily of the antenna itself, so
> they should be similar bandwidths) is determined by the coupling
> coefficient (in the coupled-inductors case, simply k) and Q of the
> components.
>
> If your receiver datasheet specifies an equivalent input circuit, you
> might be able to estimate the equivalent loss and optimize gain.

The receiver input is high impedance, approximately 10 MOhms with a low capacitance between the differential inputs of not more than 10 pF.

Your description of what is happening is very terse and full of shortened terms that I don't understand. What do you mean "line up that 10p resonance with the operating frequency"? I assume you are referring to the 10 pF input capacitance. How does this get "lined up" with anything?

When you talk about reactances canceling, that sounds a lot like a tuned circuit at resonance. That is what I *am* doing and where this thread started. One problem with that is the lack of precision or stability of the parasitic capacitance. Any idea how to deal with that?

Have you looked at the simulation data I had posted? I think you are describing exactly the circuit we are simulating which I believe is an accurate representation of the circuit I plan to build. Is that not correct?

--

Rick

79. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 03:17:33 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <5139584d$0$54952$c3e8da3$e408f015@news.astraweb.com>
Source record: 1
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Thu, 07 Mar 2013 09:50:11 -0500, rickman wrote:

> On 3/6/2013 8:13 PM, Tim Williams wrote:
>> "rickman"<gnuarm@gmail.com> wrote in message

<snip>
>
>
>>> I'm not familiar with the concept of voltage transformer vs. current
>>> transformer. How do you mean that?
>>
>> Current transformer measures current (its winding is in series),
>> potential transformer measures voltage (in parallel).
>
> Series and parallel with what? I'm not following this.
>
<snip>

An electric circuit consists of a source of power, a load, and something (like wires) connecting them. Transformers can be used if the source is providing alternating current. A voltage transformer is connected in parallel with the load so that the source, the transformer, and the load all see the same voltage. It can also be used to match a load to a source. A common example of a voltage transformer is the power transformer in a piece of equipment that changes the AC line voltage to whatever other voltages are required by the equipment.

A current transformer, on the other hand, is connected in series with the load so that the source, load, and transformer all have the same current flowing through them. The most common use of a current transformer is to measure the current flowing into a load. A clamp-on ammeter is a common example.

Historical examples of voltage and current transformers are the "picture tube brighteners" that were commonly used in TV sets to prolong the useful life of the CRT. There were two types, parallel and series. The parallel types were used in transformer operated TVs and consisted of a step-up transformer to raise the heater voltage of the CRT above normal to increase emission. The series type was used in sets with the tube heaters in series and consisted of a step-down transformer that raised the heater current above normal. Of course, raising either the voltage or the current also raised the other. These were, respectively, voltage and current transformers.

A loop antenna is a distributed source with the voltage being generated along the length of the wire and also having a magnetic field so that it can be used as part of a transformer. This blurs the distinction between a current and voltage transformer.

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

80. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 16:32:45 UTC
From: Jeff Liebermann <jeffl@cruzio.com>
Message-ID: <b94kj81askkv1io9k5sci9oqbdnrbip31l@4ax.com>
Source record: 21
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Thu, 07 Mar 2013 11:39:45 -0800, Jeff Liebermann <jeffl@cruzio.com>
wrote:

>Fortunately, WWVB is on-off
>keying with no amplitude component, so there's no incentive to add an
>AGC controlled input amplifier in order to maximize the A/D converters
>dynamic range.

Oops. WWVB does have an amplitude component and is not quite on-off
keying (OOK). There's a -17dB drop in RF signal level at the
beginning of each 1 second marker pulse. It was -10dB prior to 2005.
<http://en.wikipedia.org/wiki/WWVB#Modulation_depth>

--
Jeff Liebermann jeffl@cruzio.com
150 Felker St #D http://www.LearnByDestroying.com
Santa Cruz CA 95060 http://802.11junk.com
Skype: JeffLiebermann AE6KS 831-336-2558

81. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 18:44:36 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khdha1$2bb$2@dont-email.me>
Source record: 22
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/7/2013 2:39 PM, Jeff Liebermann wrote:
> On Thu, 07 Mar 2013 13:11:03 -0500, rickman<gnuarm@gmail.com> wrote:
>
>> I understand. But this is intended to be *very* low power and I haven't
>> found an amp I can use that is in the low double digits uW power
>> consumption range. I plan to use no amp and go straight to digital.
>
> I don't think that's possible. Unless your input A/D converter can
> operate in the microvolt region, it's going to have a difficult time
> dealing with the low signal levels. Fortunately, WWVB is on-off
> keying with no amplitude component, so there's no incentive to add an
> AGC controlled input amplifier in order to maximize the A/D converters
> dynamic range. Still, you need to work with something more than a few
> bits above the noise level. Incidentally, after midnight, you WWVB
> delivers about 100 uV/meter or more to continental US.
> <http://tf.nist.gov/tf-cgi/wwvbmonitor_e.cgi> (Java required)
> I've seen it strong enough that I can see the waveform on an
> oscilloscope after a 60Khz passive filter.

Yes, I have done my homework on the WWVB signal. I am at the fringe of the 100 uV/m contour. I would very much like to see the signal on an oscilloscope when I test this. They have a receiver not far from here in Gaithersburg, MD and the signal is often strong during the day. So much so that I don't follow why they say there is this day/night signal strength fluctuation. It looks much more random to me.

The WWVB signal is not truly on-off keying. I believe they use a 10 dB modulation factor for the AM signal. This is close to on-off I agree. But they also phase modulate the signal and I will be demodulating both to see which one works best in my design.

The ADC in my design is truly one bit. It is an LVDS input on an FPGA. I looked at delta-sigma (or is it sigma-delta? ;) conversion and got code from the chip vendor for a simplistic implementation. I don't think I have the power budget for that and am using a much simpler 1 bit ADC at 4x the carrier rate. The bit stream is multiplied by quadrature carriers at 60 kHz and each stream summed for 1/30 of a second to implement what can be considered a DFT bin, a decimated FIR filter or a decimated down conversion; take your pick, they are all mathematically the same in this case because the sampling is synchronous to the carrier (or very close to synchronous).

What comes out the other end of this processing gains nearly 40 dB in SNR. My simulations show a recoverable signal when it is more than 20

dB below the noise.

Of course, I have not tested this yet on a real signal. I want to run some tests on the antenna and coupling transformer to verify the simulation. Then I will start working with the FPGA to see if I can make the LVDS input do what I want. I have ideas on how to bend digital circuits to do my bidding. This LVDS input is why I want as large a signal as possible from the antenna. With the high impedance input on the chip I should be able to boost the signal pretty well with just passive devices and signal processing.

The loop antenna is rather large. I would like to end up with something smaller. Once I get this working with a shielded loop antenna I will check out the ferrite core antennas. My understanding is that they don't produce as much signal.

> As for bandwidth, the code is sent at 1 baud (1 bit/sec) which
> produces about a 2Hz occupied bandwidth. Therefore, the maximum Q of
> the antenna would need to be:
> 60Khz/ 2Hz = 30,000
> before the antenna bandwidth becomes a problem.

I'm not sure how you came up with 2 Hz for the bandwidth. In this case the bandwidth is not just twice the bit rate. I believe the stated "system" bandwidth is around 5 Hz (from a 1995 paper prior to addition of the phase modulation). Regardless, I am sampling at 30 Hz and if I expect to see significant changes in phase or amplitude within one sample time, I need an appropriate bandwidth.

Even so, that is not the limiting factor. The limiting factor is the difficulty in holding tune with drift in passive component values. The Q can be raised by increasing the turns ratio on the transformer, but it becomes so sensitive to the parasitic capacitance that the sensitivity drops 10 dB with a 1 pF change.

> Incidentally, while Googling away merrily, I found this on SPICE
> models for a loop antenna. It's not quite in your xformer format, but
> it might be useful:
> <http://sidstation.loudet.org/antenna-theory-en.xhtml>
> I won't pretend to understand what the author is doing until I read it
> more carefully.

Thanks. I will take a look at that.

> Incidentally, I used a WWVB code simulator driving a signal generator
> to test my receiver:
> <http://www.leapsecond.com/notes/wwvb2.htm>

I will be needing a time code simulator. I designed a commercial product that works with the IRIG-B time code which is similar. The functionality is not hard, it is just a matter of generating the data, encoding it into the modulation pattern, then impressing the carrier with the modulation. Working in an FPGA this sort of stuff is easy.

The trouble is if you make the same mistake in both the generator and receiver they work just fine in simulation, but not with other equipment. lol

I'll take a look at this link.

> If you're seriously into this, I suggest asking questions on the
> time-nuts mailing list:
> <https://www.febo.com/mailman/listinfo/time-nuts>

I might look into that. Certainly it can't hurt to get more input.

--

Rick

82. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 21:18:18 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khdkgglbg1@dont-email.me>
Source record: 24
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

```
On 3/7/2013 10:17 PM, Jim Mueller wrote:
> On Thu, 07 Mar 2013 09:50:11 -0500, rickman wrote:
>
>> On 3/6/2013 8:13 PM, Tim Williams wrote:
>>> "rickman"<gnuarm@gmail.com> wrote in message
>
> <snip>
>>
>>
>>>> I'm not familiar with the concept of voltage transformer vs. current
>>>> transformer. How do you mean that?
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>>> Current transformer measures current (its winding is in series),
>>> potential transformer measures voltage (in parallel).
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>> Series and parallel with what? I'm not following this.
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> <snip>
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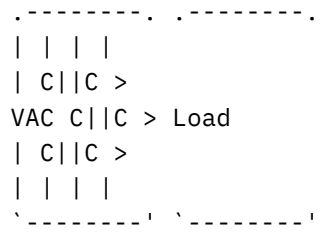
> An electric circuit consists of a source of power, a load, and something
> (like wires) connecting them. Transformers can be used if the source is
> providing alternating current. A voltage transformer is connected in
> parallel with the load so that the source, the transformer, and the load
> all see the same voltage. It can also be used to match a load to a
> source. A common example of a voltage transformer is the power
> transformer in a piece of equipment that changes the AC line voltage to
> whatever other voltages are required by the equipment.
>
> A current transformer, on the other hand, is connected in series with the
> load so that the source, load, and transformer all have the same current
> flowing through them. The most common use of a current transformer is to
> measure the current flowing into a load. A clamp-on ammeter is a common
> example.
>
> Historical examples of voltage and current transformers are the "picture
> tube brighteners" that were commonly used in TV sets to prolong the
> useful life of the CRT. There were two types, parallel and series. The
> parallel types were used in transformer operated TVs and consisted of a
> step-up transformer to raise the heater voltage of the CRT above normal
> to increase emission. The series type was used in sets with the tube
> heaters in series and consisted of a step-down transformer that raised
> the heater current above normal. Of course, raising either the voltage
> or the current also raised the other. These were, respectively, voltage
```

> and current transformers.
>
> A loop antenna is a distributed source with the voltage being generated
> along the length of the wire and also having a magnetic field so that it
> can be used as part of a transformer. This blurs the distinction between
> a current and voltage transformer.

Is this a current transformer or a voltage transformer?



--

Rick

83. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 21:20:39 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <khdkkd$m34$1@dont-email.me>
Source record: 25
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

"rickman" <gnuarm@gmail.com> wrote in message
news:khdh9v$2bb$1@dont-email.me...
>> A Q of a million will get you gobs of "gain", but if it doesn't couple
>> into free space, it's only the thermal noise of the loss generating
>> that
>> signal.
>
> I think you aren't reading what I am writing. I said I wanted a Q over
> 100, not 1 million. I don't get why you keep talking in hyperbole. What
> you are describing is not even a tradeoff between signal strength and
> SNR. If there is no coupling, there is no signal.

It may sound like hyperbole, but it's mathematically sound. The midpoint theorem, for example, guarantees that, between two points, you must've hit some point inbetween, somewhere, as long as the function is continuous. More usefully, functions arising in electronics are often one-to-one, so it's not only true that you are guaranteed midpoints, but you'll find them in order, too.

If you aren't looking at the extreme cases, you aren't doing your job. Whatever's left inbetween can simply be interpolated!

The point here being, an antenna which doesn't couple into free space obviously has a crappy SNR. The signal level can be anything, it doesn't matter. The signal need not be small, because internal losses generate thermal noise. With sufficient Q, you can push that thermal noise up to your receiver threshold (which you said is an ADC) and detect signal. It'll be bandlimited, ~60kHz noise, a useless signal, but present nonetheless.

In general, antennas which do couple strongly to free space have low Qs. A 1/2 wave resonant dipole has a Q of only 1 or 2, so bothering to call it resonant is actually kind of weak. This is similarly true for a large loop, which of course would be highly impractical here. So there must be some middle case where SNR is reasonably unaffected, which will be the best choice antenna.

Since atmospheric noise dominates, the antenna can stand to be pretty small.

>> Raw volts don't matter, you can always throw more amplifiers at it (as
>> long as they don't corrupt the SNR also!).
>
> Maybe you didn't read my other posts. I am not using an amplifier. I
> am running the antenna and coupler output directly into a digital input.

You hadn't mentioned that before...

> The receiver input is high impedance, approximately 10 MOhms with a low
> capacitance between the differential inputs of not more than 10 pF.

Any ESR? Example, the ATmega series 10 bit ADC specifies, I think, around 10pF + 10k ESR (somewhat depending on how many mux switches it's going through to get there).

> Your description of what is happening is very terse and full of
> shortened terms that I don't understand.

I could write a book on the subject to explore it in detail, but there are many available already, and there are too many holes in my knowledge to really be worth it, plus this is Usenet, you get what you pay for. I was hoping you'd Google in the blanks.

> What do you mean "line up that
> 10p resonance with the operating frequency"? I assume you are referring
> to the 10 pF input capacitance. How does this get "lined up" with
> anything?

There's yet another theorem in networks that has to do with matching.

A resonant tank's impedance varies wildly with frequency. But it will always be resistive at resonance. If you connect this to another network, which has a resistive input impedance at the same frequency, you don't care what the L and C are, it will simply work -- old fashioned resistor divider action!

You *do* have to worry about L and C and reactance and bandwidth to solve for the frequency response and stuff, but you can at least approximate that with Q factor (i.e., how much loss is draining power out of the system).

So if your ADC input is exactly 10p + 10M, you could resonate it with 0.7H (well...), which has a resonant impedance of 264k, and thus a reasonable Q of 38. (The real world typically bitchslaps the theorist at this point, as 0.7H chokes with <10pF parasitic capacitance and Q > 38 at 60kHz don't exist.) If the capacitance's ESR is less than 6.9kohms (i.e., 264k / 38), it won't have significant effect.

You can couple to this tank via parallel or series. If you did series, the input impedance would be 264k / 38, or 6.9k, not horrible; going from the 0.78 ohm loop to this in a single transformer requires a 1:100 CT, which works fine at 60kHz. (This CT would require high inductance, so as to avoid skewing results, but that's typical of a CT. An amorphous core CT would probably suffice. So at least that part is physically realizable.) Note the irony of coupling a current loop to a current loop, where in both cases, the CT looks like a small impedance relative to the loop it's within. That's simply how huge the impedance at the ADC is.

Since all these resistances are matched, the power transfer theorem holds, and you're pushing as much voltage and power into the ADC as possible. The bandwidth is about 1.6kHz, so the thermal noise floor is around 5uV at

the ADC. A received power of 1nW will generate 0.1V, which is probably a reasonable figure. The SNR of the receiver is limited by quantization noise for <14 bits, thermal for >14 bits. A 16 bit converter wouldn't be too expensive at this sample rate (note it's the analog sample-and-hold speed which limits direct conversion performance; a sigma-delta, running at 100Hz, with no S&H, won't see jack).

> When you talk about reactances canceling, that sounds a lot like a tuned
> circuit at resonance. That is what I *am* doing and where this thread
> started. One problem with that is the lack of precision or stability of
> the parasitic capacitance. Any idea how to deal with that?

Considering theoretical 0.7H chokes aren't commercially available, you might swamp it with more C, which stabilizes the value, and requires less L to resonate. Rub: resonant impedance is lower, so the Q of the components must be higher in order to achieve the same performance. Even with a Q of 200, you still need over 0.25H, which is just as unlikely a combination. Well, if you really wanted to try, maybe a gapped ferrite-cored inductor could be made. Still, the only practical choice seems to be lower signal level.

So ultimately, the question is, how little signal can you tolerate before you need an amplifier? How many bits of conversion, how much sample rate can you afford before a linear amplifier becomes cheaper on the power budget?

> Have you looked at the simulation data I had posted? I think you are
> describing exactly the circuit we are simulating which I believe is an
> accurate representation of the circuit I plan to build. Is that not
> correct?

It's getting closer, but with adjustments (to the transformer inductance) to make the resonances line up (same frequencies). Plus whatever compromise you need to make on gain.

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com

84. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 21:30:53 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <khdl8n$pf9$1@dont-email.me>
Source record: 30
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

```
"rickman" <gnuarm@gmail.com> wrote in message
news:khdkgg$lbg$1@dont-email.me...
> Is this a current transformer or a voltage transformer?
> .--------. .--------.
> | | | |
> | C||C >
> VAC C||C > Load
> | C||C >
> | | | |
> `--------' `--------'

Voltage. How about this?

> .--------. .--------.
> | | | |
> | C||C >
> IAC C||C > Load
> | C||C >
> | | | |
> `--------' `--------'

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com
```

85. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 21:51:18 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khdmeavkr1@dont-email.me>
Source record: 45
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/8/2013 4:20 PM, Tim Williams wrote:
>
> It may sound like hyperbole, but it's mathematically sound. The midpoint
> theorem, for example, guarantees that, between two points, you must've hit
> some point inbetween, somewhere, as long as the function is continuous.
> More usefully, functions arising in electronics are often one-to-one, so
> it's not only true that you are guaranteed midpoints, but you'll find them
> in order, too.
>
> If you aren't looking at the extreme cases, you aren't doing your job.
> Whatever's left inbetween can simply be interpolated!
>
> The point here being, an antenna which doesn't couple into free space
> obviously has a crappy SNR. The signal level can be anything, it doesn't
> matter. The signal need not be small, because internal losses generate
> thermal noise. With sufficient Q, you can push that thermal noise up to
> your receiver threshold (which you said is an ADC) and detect signal.
> It'll be bandlimited, ~60kHz noise, a useless signal, but present
> nonetheless.
>
> In general, antennas which do couple strongly to free space have low Qs.
> A 1/2 wave resonant dipole has a Q of only 1 or 2, so bothering to call it
> resonant is actually kind of weak. This is similarly true for a large
> loop, which of course would be highly impractical here. So there must be
> some middle case where SNR is reasonably unaffected, which will be the
> best choice antenna.

I was warned a long time ago to be wary of people speaking in
"glittering generalities". You seem to insist on using terms without
giving a mathematical basis. How about if we use some math?

V = (2 * pi * A * N * E * cos(theta)) / lambda

V is the voltage on the antenna,
A is the loop area,
N is the number of turns,
E is the field strength,
theta is the rotation angle of the antenna and the transmitter (just
consider this term to be 1,
lamba is the wavelength (c/f)

This is multiplied by the Q factor when resonated by a capacitor. So
higher Q, higher signal.

Where in here do you think I am having a problem?

> Since atmospheric noise dominates, the antenna can stand to be pretty
> small.

You are making assumptions that don't hold true in my design.

>>> Raw volts don't matter, you can always throw more amplifiers at it (as
>>> long as they don't corrupt the SNR also!).
>>
>> Maybe you didn't read my other posts. I am not using an amplifier. I
>> am running the antenna and coupler output directly into a digital input.
>
> You hadn't mentioned that before...

You didn't ask.

>> The receiver input is high impedance, approximately 10 MOhms with a low
>> capacitance between the differential inputs of not more than 10 pF.
>
> Any ESR? Example, the ATmega series 10 bit ADC specifies, I think, around
> 10pF + 10k ESR (somewhat depending on how many mux switches it's going
> through to get there).

FET input resistance. I will double check that though.

>> Your description of what is happening is very terse and full of
>> shortened terms that I don't understand.
>
> I could write a book on the subject to explore it in detail, but there are
> many available already, and there are too many holes in my knowledge to
> really be worth it, plus this is Usenet, you get what you pay for. I was
> hoping you'd Google in the blanks.

I thought I was doing well, but you seem to be telling me I am making
mistakes, but I can't figure out what they might be.

>> What do you mean "line up that
>> 10p resonance with the operating frequency"? I assume you are referring
>> to the 10 pF input capacitance. How does this get "lined up" with
>> anything?
>
> There's yet another theorem in networks that has to do with matching.
>
> A resonant tank's impedance varies wildly with frequency. But it will
> always be resistive at resonance. If you connect this to another network,
> which has a resistive input impedance at the same frequency, you don't
> care what the L and C are, it will simply work -- old fashioned resistor
> divider action!
>
> You *do* have to worry about L and C and reactance and bandwidth to solve
> for the frequency response and stuff, but you can at least approximate
> that with Q factor (i.e., how much loss is draining power out of the
> system).
>
> So if your ADC input is exactly 10p + 10M, you could resonate it with 0.7H

> (well...), which has a resonant impedance of 264k, and thus a reasonable Q
> of 38. (The real world typically bitchslaps the theorist at this point,
> as 0.7H chokes with<10pF parasitic capacitance and Q> 38 at 60kHz don't
> exist.) If the capacitance's ESR is less than 6.9kohms (i.e., 264k / 38),
> it won't have significant effect.
>
> You can couple to this tank via parallel or series. If you did series,
> the input impedance would be 264k / 38, or 6.9k, not horrible; going from
> the 0.78 ohm loop to this in a single transformer requires a 1:100 CT,
> which works fine at 60kHz. (This CT would require high inductance, so as
> to avoid skewing results, but that's typical of a CT. An amorphous core
> CT would probably suffice. So at least that part is physically
> realizable.) Note the irony of coupling a current loop to a current loop,
> where in both cases, the CT looks like a small impedance relative to the
> loop it's within. That's simply how huge the impedance at the ADC is.
>
> Since all these resistances are matched, the power transfer theorem holds,
> and you're pushing as much voltage and power into the ADC as possible.
> The bandwidth is about 1.6kHz, so the thermal noise floor is around 5uV at
> the ADC. A received power of 1nW will generate 0.1V, which is probably a
> reasonable figure. The SNR of the receiver is limited by quantization
> noise for<14 bits, thermal for>14 bits. A 16 bit converter wouldn't be
> too expensive at this sample rate (note it's the analog sample-and-hold
> speed which limits direct conversion performance; a sigma-delta, running
> at 100Hz, with no S&H, won't see jack).
>
>> When you talk about reactances canceling, that sounds a lot like a tuned
>> circuit at resonance. That is what I *am* doing and where this thread
>> started. One problem with that is the lack of precision or stability of
>> the parasitic capacitance. Any idea how to deal with that?
>
> Considering theoretical 0.7H chokes aren't commercially available, you
> might swamp it with more C, which stabilizes the value, and requires less
> L to resonate. Rub: resonant impedance is lower, so the Q of the
> components must be higher in order to achieve the same performance. Even
> with a Q of 200, you still need over 0.25H, which is just as unlikely a
> combination. Well, if you really wanted to try, maybe a gapped
> ferrite-cored inductor could be made. Still, the only practical choice
> seems to be lower signal level.
>
> So ultimately, the question is, how little signal can you tolerate before
> you need an amplifier? How many bits of conversion, how much sample rate
> can you afford before a linear amplifier becomes cheaper on the power
> budget?
>
>> Have you looked at the simulation data I had posted? I think you are
>> describing exactly the circuit we are simulating which I believe is an
>> accurate representation of the circuit I plan to build. Is that not
>> correct?
>

> It's getting closer, but with adjustments (to the transformer inductance)
> to make the resonances line up (same frequencies). Plus whatever
> compromise you need to make on gain.

We are still having communications difficulties. You keep talking in terms I can't relate to. I don't need you to write a book, but I do need you to communicate clearly.

I am using a 1 bit ADC. Don't assume that I am doing what you have done in the past.

--

Rick

86. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-08 21:51:57 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khdmfhvkr2@dont-email.me>
Source record: 31
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

```
On 3/8/2013 4:30 PM, Tim Williams wrote:
> "rickman"<gnuarm@gmail.com> wrote in message
> news:khdkgg$lbg$1@dont-email.me...
>> Is this a current transformer or a voltage transformer?
>> .--------. .--------.
>> | | | |
>> | C||C>
>> VAC C||C> Load
>> | C||C>
>> | | | |
>> `--------' `--------'
>
> Voltage. How about this?
>
>> .--------. .--------.
>> | | | |
>> | C||C>
>> IAC C||C> Load
>> | C||C>
>> | | | |
>> `--------' `--------'
>
> Tim
>

I have to say I don't follow the distinction. It is a transformer, no?

--

Rick
```

87. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-10 06:32:18 UTC
From: Jeff Liebermann <jeffl@cruzio.com>
Message-ID: <ma7oj855l31sc54nsbr3uqo8k0pa2um68j@4ax.com>
Source record: 52
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Fri, 08 Mar 2013 13:44:36 -0500, rickman <gnuarm@gmail.com> wrote:

>I am at the fringe of
>the 100 uV/m contour. I would very much like to see the signal on an
>oscilloscope when I test this.

I built a passive 60KHz bandpass filters out of a collection of
ferrite cores from an old modem front end. I left it at a previous
consulting job, but can resurrect the design if necessary.
Incidentally, during my limited testing at home, I found that the
biggest determent to decent reception was all the switching power
supply noise found around the house. I finally ended up using a
battery power oscilloscope
<http://802.11junk.com/jeffl/pics/drivel/slides/tek213.html>
a gel cell for powering the RF amp, and turning off the main power to
the house. Then, I could sorta see a signal.

>They have a receiver not far from here
>in Gaithersburg, MD and the signal is often strong during the day. So
>much so that I don't follow why they say there is this day/night signal
>strength fluctuation. It looks much more random to me.

<http://tf.nist.gov/tf-cgi/wwvbgraph_e.cgi?5636103007>
Very random. Compare the above graph with Santa Clara which looks
less random:
<http://tf.nist.gov/tf-cgi/wwvbgraph_e.cgi?5636105007>

On the east coast, besides a weak signal, you also have the potential
for 60KHz interference from the UK:
<http://en.wikipedia.org/wiki/MSF_time_signal>

I had a 100KHz LORAN antenna on the roof of a former employer. The
signal was just fine, until someone turned on the mercury vapor arc
parking lot lamps at night. They were changed to low pressure sodium,
which made testing possible at night.

Incidentally, got any clue as to the vertical scale? My guess(tm) is
20 uv/meter signal strength per division, but I'm not sure.

>The WWVB signal is not truly on-off keying. I believe they use a 10 dB
>modulation factor for the AM signal. This is close to on-off I agree.

It's now 17dB drop at the beginning of each UTC second. The change
came in about 2008.

>But they also phase modulate the signal and I will be demodulating both
>to see which one works best in my design.

The BPSK signal is much better at rejecting interference and digging
the signal out of the noise. I don't know exactly how much, but I'm
sure it's in a NIST publication somewhere.

>The ADC in my design is truly one bit. It is an LVDS input on an FPGA.
> I looked at delta-sigma (or is it sigma-delta? ;)

It's delta-sigma.

>The loop antenna is rather large. I would like to end up with something
>smaller. Once I get this working with a shielded loop antenna I will
>check out the ferrite core antennas. My understanding is that they
>don't produce as much signal.

Not exactly. Small loopsticks receive a proportional amount of noise.
The ratio of signal to atmospheric noise remains roughly the same
within a fixed bandwidth for any antenna. That's why tiny little
loopsticks, inside "atomic time" wristwatches work. The small
loopsticks also use the magnetic field instead of the electric field,
which is why they can be made so small.
<http://en.wikipedia.org/wiki/Loop_antenna#Small_loops>

>> As for bandwidth, the code is sent at 1 baud (1 bit/sec) which
>> produces about a 2Hz occupied bandwidth. Therefore, the maximum Q of
>> the antenna would need to be:
>> 60Khz/ 2Hz = 30,000
>> before the antenna bandwidth becomes a problem.
>
>I'm not sure how you came up with 2 Hz for the bandwidth. In this case
>the bandwidth is not just twice the bit rate. I believe the stated
>"system" bandwidth is around 5 Hz (from a 1995 paper prior to addition
>of the phase modulation).

Ok, I made a bad guess(tm). Even at 5Hz BW, the maximum Q of
60KHz / 5Hz = 12,000
is not going to happen in a loop or loopstick antenna.

>Even so, that is not the limiting factor. The limiting factor is the
>difficulty in holding tune with drift in passive component values.

Agreed.

--
Jeff Liebermann jeffl@cruzio.com
150 Felker St #D http://www.LearnByDestroying.com
Santa Cruz CA 95060 http://802.11junk.com
Skype: JeffLiebermann AE6KS 831-336-2558

88. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-10 21:09:45 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khisodljr1@dont-email.me>
Source record: 53
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/10/2013 1:32 AM, Jeff Liebermann wrote:
> On Fri, 08 Mar 2013 13:44:36 -0500, rickman<gnuarm@gmail.com> wrote:
>
>> I am at the fringe of
>> the 100 uV/m contour. I would very much like to see the signal on an
>> oscilloscope when I test this.
>
> I built a passive 60KHz bandpass filters out of a collection of
> ferrite cores from an old modem front end. I left it at a previous
> consulting job, but can resurrect the design if necessary.
> Incidentally, during my limited testing at home, I found that the
> biggest determent to decent reception was all the switching power
> supply noise found around the house. I finally ended up using a
> battery power oscilloscope
> <http://802.11junk.com/jeffl/pics/drivel/slides/tek213.html>
> a gel cell for powering the RF amp, and turning off the main power to
> the house. Then, I could sorta see a signal.

Holy crap! That's a lot of trouble to see a signal. By "see" I assume
you mean on the scope. How large was the signal?

The place where I am working currently is not very close to much and
there isn't much in the house. I'm told the fridge is the biggest
source of noise. We'll see how the CFL lamps do.

Funny, last night my two RCC's both updated like they should. One is an
analog clock and runs at 8x speed to get the hour ahead. In the fall it
does this to go 11 hours ahead. Quite a sight! They both did the job,
but my PC didn't update until it had been on for awhile, without being
connected to the I'net.

>> They have a receiver not far from here
>> in Gaithersburg, MD and the signal is often strong during the day. So
>> much so that I don't follow why they say there is this day/night signal
>> strength fluctuation. It looks much more random to me.
>
> <http://tf.nist.gov/tf-cgi/wwvbgraph_e.cgi?5636103007>
> Very random. Compare the above graph with Santa Clara which looks
> less random:
> <http://tf.nist.gov/tf-cgi/wwvbgraph_e.cgi?5636105007>
>
> On the east coast, besides a weak signal, you also have the potential
> for 60KHz interference from the UK:
> <http://en.wikipedia.org/wiki/MSF_time_signal>

Loop antennas have a null that can be steered toward the source of
interference. I expect that will solve that problem...

> I had a 100KHz LORAN antenna on the roof of a former employer. The
> signal was just fine, until someone turned on the mercury vapor arc
> parking lot lamps at night. They were changed to low pressure sodium,
> which made testing possible at night.
>
> Incidentally, got any clue as to the vertical scale? My guess(tm) is
> 20 uv/meter signal strength per division, but I'm not sure.
>
>> The WWVB signal is not truly on-off keying. I believe they use a 10 dB
>> modulation factor for the AM signal. This is close to on-off I agree.
>
> It's now 17dB drop at the beginning of each UTC second. The change
> came in about 2008.
>
>> But they also phase modulate the signal and I will be demodulating both
>> to see which one works best in my design.
>
> The BPSK signal is much better at rejecting interference and digging
> the signal out of the noise. I don't know exactly how much, but I'm
> sure it's in a NIST publication somewhere.

That's for an ideal receiver. I have my limitations and I have no idea
how that will impact the reception.

>> The ADC in my design is truly one bit. It is an LVDS input on an FPGA.
>> I looked at delta-sigma (or is it sigma-delta? ;)
>
> It's delta-sigma.

Actually I always say that with a smiley as it can be either.

>> The loop antenna is rather large. I would like to end up with something
>> smaller. Once I get this working with a shielded loop antenna I will
>> check out the ferrite core antennas. My understanding is that they
>> don't produce as much signal.
>
> Not exactly. Small loopsticks receive a proportional amount of noise.
> The ratio of signal to atmospheric noise remains roughly the same
> within a fixed bandwidth for any antenna. That's why tiny little
> loopsticks, inside "atomic time" wristwatches work. The small
> loopsticks also use the magnetic field instead of the electric field,
> which is why they can be made so small.
> <http://en.wikipedia.org/wiki/Loop_antenna#Small_loops>

In my case I am not worried that the SNR isn't better, I just need a
strong enough signal to drive the LVDS input. I will be providing
feedback to eliminate any DC bias, but even that will only be so good.
The input is claimed to have no hysteresis, but even a tiny amount can
ruin this design. I will only know if this will work when I try it.

>>> As for bandwidth, the code is sent at 1 baud (1 bit/sec) which
>>> produces about a 2Hz occupied bandwidth. Therefore, the maximum Q of
>>> the antenna would need to be:
>>> 60Khz/ 2Hz = 30,000
>>> before the antenna bandwidth becomes a problem.
>>
>> I'm not sure how you came up with 2 Hz for the bandwidth. In this case
>> the bandwidth is not just twice the bit rate. I believe the stated
>> "system" bandwidth is around 5 Hz (from a 1995 paper prior to addition
>> of the phase modulation).
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> Ok, I made a bad guess(tm). Even at 5Hz BW, the maximum Q of
> 60KHz / 5Hz = 12,000
> is not going to happen in a loop or loopstick antenna.
>
>> Even so, that is not the limiting factor. The limiting factor is the
>> difficulty in holding tune with drift in passive component values.
>
> Agreed.
>
>

--

Rick

89. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-11 01:25:09 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <513d3275$0$7262$c3e8da3$b1356c67@news.astraweb.com>
Source record: 54
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Fri, 08 Mar 2013 16:51:57 -0500, rickman wrote:

> On 3/8/2013 4:30 PM, Tim Williams wrote:
>> "rickman"<gnuarm@gmail.com> wrote in message
>> news:khdkgglbg1@dont-email.me...
>>> Is this a current transformer or a voltage transformer?
>>> .--------. .--------.
>>> | | | |
>>> | C||C>
>>> VAC C||C> Load
>>> | C||C>
>>> | | | |
>>> `--------' `--------'
>>
>> Voltage. How about this?
>>
>>> .--------. .--------.
>>> | | | |
>>> | C||C>
>>> IAC C||C> Load
>>> | C||C>
>>> | | | |
>>> `--------' `--------'
>>
>> Tim
>>
>>
> I have to say I don't follow the distinction. It is a transformer, no?

The second one is a current transformer. They both consist of coils around a magnetic core driving some kind of load. The difference is the source of power and that causes them to behave very differently as well as being constructed differently.

Let's assume ideal components (a good place to start when learning a new concept). The voltage transformer is driven by a source that provides a constant voltage, no matter what the load. The transformer takes this voltage and converts it to some other voltage depending on the turns ratio; Vout = Vin * Ts / Tp. For example, if the primary has 100 turns and the secondary has 20 turns and the primary is supplied with 50 volts, the secondary will provide 10 volts. As the secondary load changes, this voltage remains the same but the current changes. If the secondary is open-circuited, the voltage still stays the same. If the secondary is short-circuited, the current becomes infinite; that's why real voltage

transformers are protected by fuses or similar devices.

Now for the current transformer, it is driven by a source that provides a constant current no matter what the load. The transformer takes this current and converts it to some other current depending on the turns ratio; Iout = Iin * Tp / Ts (note the inversion of the turns ratio). For example, if the primary has 1 turn (a common number for real transformers) and the secondary has 5 turns and the primary is supplied with 5 amps, the secondary will provide 1 amp. As the secondary load changes, this current remains the same but the voltage changes. If the secondary is short-circuited, the current still stays the same. If the secondary is open-circuited, the voltage becomes infinite; that's why real portable current transformers have a shorting switch on the secondary that the operator must close before disconnecting the load.

Also, note the difference in the number of turns, voltage transformers have a lot of turns and current transformers have few turns.

For a loop antenna with an external resonating capacitor, a voltage transformer would be connected in parallel with the loop and capacitor; all three in a parallel circuit. A current transformer would be connected in series with the antenna and capacitor so that the three form a series circuit. If the loop itself is used as the primary of the transformer and another winding is used as the secondary, the distinction between the two types is blurred. Also, a real antenna is neither a voltage source nor a current source but something in between.

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

90. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-11 03:42:49 UTC
From: Jeff Liebermann <jeffl@cruzio.com>
Message-ID: <bjfqj8lcoqdtl2ufse5m51341ap6j1lt4i@4ax.com>
Source record: 55
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Sun, 10 Mar 2013 17:09:45 -0400, rickman <gnuarm@gmail.com> wrote:

>On 3/10/2013 1:32 AM, Jeff Liebermann wrote:

>Holy crap! That's a lot of trouble to see a signal. By "see" I assume
>you mean on the scope. How large was the signal?

Turning off the house was easier than finding the multiple sources of
noise at 60KHz. What drove me nuts for about an hour was that much of
the noise was coming from my bench oscilloscope. Argh.

This is typical. WWVH through an active preamp showing the effect of
power line noise (probably from attached switching power supplies).
<http://www.prc68.com/I/Images/AMRAD110.GIF>
and after adding some better line filtering:
<http://www.prc68.com/I/Images/AMRAD_BT.GIF>
Main page:
<http://www.prc68.com/I/LF-Ant.shtml>

I didn't log the setup or take pictures. So, let's do the math and
guesswork.
<http://vk1od.net/calc/FS2RPCalc.htm>
I plugged in some guesses and recollections as to what the antenna
(Q=30) and amp (+20dB gain) were doing and got:
<http://802.11junk.com/jeffl/crud/WWVH-rx-signal-estimate.jpg>
-15.8dBm or about 36mv into 50 ohms. I amplified this about 20dB with
two or three U310 JFET's (I forgot what I did) to about 3V rms on the
scope. I didn't bother with the 50 ohm to scope input Z conversion.
Most of what I saw was noise, noise, and more noise. However, if I
was patient, I could see the data fade in an out. As I vaguely
recall, it was less than 1 division or about 0.1v change.

>The place where I am working currently is not very close to much and
>there isn't much in the house. I'm told the fridge is the biggest
>source of noise. We'll see how the CFL lamps do.

Sigh. Most of what I found at 60KHz was coming from lightning storms
over Florida. The local sources were all switching power supplies,
including those in my test equipment. I didn't have an CFL or LED
room lights at the time. I've recently found them to be a rather
nasty noise source. Also, the switching power supply wall warts were
rather awful. My standard test is to fire up my antique IC-735 HF
xceiver, attach a long length of RG-58c/u to the antenna with a
resonant loop at the end, tune it to 100KHz (as low as it will go),
and sniff around the house.

What you'll see on a spectrum analyzer.
<http://www.prc68.com/I/Spec_0002.shtml>
If you're thinking of removing all that junk with a 5Hz wide digital filter in software, please note that you'll need to have the input A/D handle the total power of almost all that junk. Also, the amplifier that you're trying to avoid between the antenna and A/D will also need to be rather linear, and therefore rather high power, in order to avoid producing more spurious junk via intermodulation products.

>Funny, last night my two RCC's both updated like they should. One is an
>analog clock and runs at 8x speed to get the hour ahead. In the fall it
>does this to go 11 hours ahead. Quite a sight! They both did the job,
>but my PC didn't update until it had been on for awhile, without being
>connected to the I'net.

So that's how they change daylight savings time. If I had known, I would have stayed and watched. Thanks for the tip.

>> On the east coast, besides a weak signal, you also have the potential
>> for 60KHz interference from the UK:
>> <http://en.wikipedia.org/wiki/MSF_time_signal>
>
>Loop antennas have a null that can be steered toward the source of
>interference. I expect that will solve that problem...

The depth of the notch seems to be less as the antenna shrinks in size. I'm not sure about this as I haven't attempted to recently model a 60KHz magnetic loop with 4NEC2, but that's what my tinkering shows. If there were a deep notch, most of the home "atomic clock" receivers would be orientation sensitive and I would expect warnings in the docs.

>> The BPSK signal is much better at rejecting interference and digging
>> the signal out of the noise. I don't know exactly how much, but I'm
>> sure it's in a NIST publication somewhere.
>
>That's for an ideal receiver. I have my limitations and I have no idea
>how that will impact the reception.

Well, you have to start somewhere, and an ideal receiver is a good place to start. The advantage is that reality only makes everything worse, never better. You should be able to build the BPSK demodulator, and then use a PC to decode the data. I've seen several such programs that do not require I/Q outputs. Here's one based on FreeBSD intended to sync the system clock to WWV/WWVH:
<http://docs.freebsd.org/doc/4.0-RELEASE/usr/share/doc/ntp/driver36.htm>
I'm sure there are others.

>In my case I am not worried that the SNR isn't better, I just need a
>strong enough signal to drive the LVDS input.

Gain at 60KHz is very cheap. Watch out for overload issues. If you design it to work at full scale with whatever you get at 50uV/m, and the signal climbs to 100uV/m, your input A/D isn't going to be very

happy. AGC will help, but I don't think it will be needed if you calculate your signal levels so that the A/D input amp isn't clipping.

Out of service for a day. It seems that about 30 years of chemistry experiments has finally destroyed much of the kitchen sink plumbing. I hate plumbing.

--
Jeff Liebermann jeffl@cruzio.com
150 Felker St #D http://www.LearnByDestroying.com
Santa Cruz CA 95060 http://802.11junk.com
Skype: JeffLiebermann AE6KS 831-336-2558

91. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-11 09:54:28 UTC
From: Rob <nomail@example.com>
Message-ID: <slrnkjraek.etc.nomail@xs8.xs4all.nl>
Source record: 56
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

rickman <gnuarm@gmail.com> wrote:
> Funny, last night my two RCC's both updated like they should. One is an
> analog clock and runs at 8x speed to get the hour ahead. In the fall it
> does this to go 11 hours ahead. Quite a sight! They both did the job,
> but my PC didn't update until it had been on for awhile, without being
> connected to the I'net.

In Europe we have DCF-77 which is at 77.5 kHz.
The trouble receiving it is similar to WWVB.
I have several clocks in the house but some of them have only very
weak sync. Also, to save battery they only sync once every 12 hours
or so. At DST change, they may display the wrong time for a couple
of days, especially the one in the kitchen. I need to relocate it
to a place where I know there is better signal.

The problem is (harmonics of) switching power supplies here as well.
Once I had a big open-frame SMPS that I used to power my radio equipment
and that switched around 25 kHz. Under the right circumstances, the
3rd harmonic wiped away all DCF-77 receiving within 5 meters or so.
Old CRT computer monitors also were problematic.

I presume you have some specific needs, low power being among them,
to stay focussed on WWVB for your clock sync. Most computer users
would use GPS now, or simply sync via the internet. GPS has a different
receiving conditions problem, but at least it isn't so much affected
by prominently present local interference.

Of course a GPS receiver requires a lot more power than a WWVB receiver,
although this has come down over the years. Using some sort of on/off
switching (syncing with the received time and then having it run free
for some time) may help a bit, the battery powered radio clocks do
that as well.

92. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-11 21:29:28 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khli9i$2r4$1@dont-email.me>
Source record: 57
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

```
On 3/10/2013 9:25 PM, Jim Mueller wrote:
> On Fri, 08 Mar 2013 16:51:57 -0500, rickman wrote:
>
>> On 3/8/2013 4:30 PM, Tim Williams wrote:
>>> "rickman"<gnuarm@gmail.com> wrote in message
>>> news:khdkgg$lbg$1@dont-email.me...
>>>> Is this a current transformer or a voltage transformer?
>>>> .--------. .--------.
>>>> | | | |
>>>> | C||C>
>>>> VAC C||C> Load
>>>> | C||C>
>>>> | | | |
>>>> `--------' `--------'
>>>
>>> Voltage. How about this?
>>>
>>>> .--------. .--------.
>>>> | | | |
>>>> | C||C>
>>>> IAC C||C> Load
>>>> | C||C>
>>>> | | | |
>>>> `--------' `--------'
>>>
>>> Tim
>>>
>>>
>> I have to say I don't follow the distinction. It is a transformer, no?
>
> The second one is a current transformer. They both consist of coils
> around a magnetic core driving some kind of load. The difference is the
> source of power and that causes them to behave very differently as well
> as being constructed differently.

I can't say I understand the distinction.

> Let's assume ideal components (a good place to start when learning a new
> concept). The voltage transformer is driven by a source that provides a
> constant voltage, no matter what the load. The transformer takes this
> voltage and converts it to some other voltage depending on the turns
> ratio; Vout = Vin * Ts / Tp. For example, if the primary has 100 turns
> and the secondary has 20 turns and the primary is supplied with 50 volts,
> the secondary will provide 10 volts. As the secondary load changes, this
```

> voltage remains the same but the current changes. If the secondary is
> open-circuited, the voltage still stays the same. If the secondary is
> short-circuited, the current becomes infinite; that's why real voltage
> transformers are protected by fuses or similar devices.

This is ok so far.

> Now for the current transformer, it is driven by a source that provides a
> constant current no matter what the load. The transformer takes this
> current and converts it to some other current depending on the turns
> ratio; Iout = Iin * Tp / Ts (note the inversion of the turns ratio).
> For example, if the primary has 1 turn (a common number for real
> transformers) and the secondary has 5 turns and the primary is supplied
> with 5 amps, the secondary will provide 1 amp. As the secondary load
> changes, this current remains the same but the voltage changes. If the
> secondary is short-circuited, the current still stays the same. If the
> secondary is open-circuited, the voltage becomes infinite; that's why
> real portable current transformers have a shorting switch on the
> secondary that the operator must close before disconnecting the load.

I don't follow how any of this has to do with a difference in the
transformers. Bth transformers obey both equations you have presented.
Both transformers change the voltage as well as the current, no?

> Also, note the difference in the number of turns, voltage transformers
> have a lot of turns and current transformers have few turns.

I don't see how this follows from what you have written. What is there
about these two transformers that define the number of turns? The
current transformers I am interested in using use 100 or 300 turns. Is
that a lot or just a few?

> For a loop antenna with an external resonating capacitor, a voltage
> transformer would be connected in parallel with the loop and capacitor;
> all three in a parallel circuit. A current transformer would be
> connected in series with the antenna and capacitor so that the three form
> a series circuit. If the loop itself is used as the primary of the
> transformer and another winding is used as the secondary, the distinction
> between the two types is blurred. Also, a real antenna is neither a
> voltage source nor a current source but something in between.

What I have gotten from this is that Tim's original usage of the terms
implies how the transformer is connected to the antenna. As you say, a
voltage transformer will be connected across the coil in parallel with
the capacitor and a current transformer will be connected in series with
the antenna and capacitor.

I was planning to use the antenna wire itself in the middle of the
antenna loop as the primary of the transformer. So I guess that will be
a current transformer. I may try a simulation to see just what happens
with a parallel connection.

--

Rick

93. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-11 22:10:23 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khlkm1$f80$1@dont-email.me>
Source record: 58
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/10/2013 11:42 PM, Jeff Liebermann wrote:
> On Sun, 10 Mar 2013 17:09:45 -0400, rickman<gnuarm@gmail.com> wrote:
>
>> On 3/10/2013 1:32 AM, Jeff Liebermann wrote:
>
>> Holy crap! That's a lot of trouble to see a signal. By "see" I assume
>> you mean on the scope. How large was the signal?
>
> Turning off the house was easier than finding the multiple sources of
> noise at 60KHz. What drove me nuts for about an hour was that much of
> the noise was coming from my bench oscilloscope. Argh.

Yes, like I said, not much in this house and there is not much near it. I have a laptop and my roommate (when he is here) uses one along with an iPhone. I suppose they might generate some noise, but he turns off his laptop at night I'm sure. Otherwise, there just isn't much in the house that isn't 10 or 15 years old. I have a car radio on a linear regulator and an electric shaver that sits charging (part of the time). Otherwise it should be pretty quiet electrically here.

> This is typical. WWVH through an active preamp showing the effect of
> power line noise (probably from attached switching power supplies).
> <http://www.prc68.com/I/Images/AMRAD110.GIF>
> and after adding some better line filtering:
> <http://www.prc68.com/I/Images/AMRAD_BT.GIF>
> Main page:
> <http://www.prc68.com/I/LF-Ant.shtml>
>
> I didn't log the setup or take pictures. So, let's do the math and
> guesswork.
> <http://vk1od.net/calc/FS2RPCalc.htm>
> I plugged in some guesses and recollections as to what the antenna
> (Q=30) and amp (+20dB gain) were doing and got:
> <http://802.11junk.com/jeffl/crud/WWVH-rx-signal-estimate.jpg>
> -15.8dBm or about 36mv into 50 ohms. I amplified this about 20dB with
> two or three U310 JFET's (I forgot what I did) to about 3V rms on the
> scope. I didn't bother with the 50 ohm to scope input Z conversion.
> Most of what I saw was noise, noise, and more noise. However, if I
> was patient, I could see the data fade in an out. As I vaguely
> recall, it was less than 1 division or about 0.1v change.

I'm not sure why you used 1900 meters for the distance. I also don't get why you used 5 ohms for the receiver input impedance.

>> The place where I am working currently is not very close to much and
>> there isn't much in the house. I'm told the fridge is the biggest
>> source of noise. We'll see how the CFL lamps do.
>
> Sigh. Most of what I found at 60KHz was coming from lightning storms
> over Florida. The local sources were all switching power supplies,
> including those in my test equipment. I didn't have an CFL or LED
> room lights at the time. I've recently found them to be a rather
> nasty noise source. Also, the switching power supply wall warts were
> rather awful. My standard test is to fire up my antique IC-735 HF
> xceiver, attach a long length of RG-58c/u to the antenna with a
> resonant loop at the end, tune it to 100KHz (as low as it will go),
> and sniff around the house.

There's just not much of that in this house.

> What you'll see on a spectrum analyzer.
> <http://www.prc68.com/I/Spec_0002.shtml>
> If you're thinking of removing all that junk with a 5Hz wide digital
> filter in software, please note that you'll need to have the input A/D
> handle the total power of almost all that junk. Also, the amplifier
> that you're trying to avoid between the antenna and A/D will also need
> to be rather linear, and therefore rather high power, in order to
> avoid producing more spurious junk via intermodulation products.

What A/D? Oh, you mean the LVDS input. How do you saturate a 1 bit ADC?

>> Funny, last night my two RCC's both updated like they should. One is an
>> analog clock and runs at 8x speed to get the hour ahead. In the fall it
>> does this to go 11 hours ahead. Quite a sight! They both did the job,
>> but my PC didn't update until it had been on for awhile, without being
>> connected to the I'net.
>
> So that's how they change daylight savings time. If I had known, I
> would have stayed and watched. Thanks for the tip.
>
>>> On the east coast, besides a weak signal, you also have the potential
>>> for 60KHz interference from the UK:
>>> <http://en.wikipedia.org/wiki/MSF_time_signal>
>>
>> Loop antennas have a null that can be steered toward the source of
>> interference. I expect that will solve that problem...
>
> The depth of the notch seems to be less as the antenna shrinks in
> size. I'm not sure about this as I haven't attempted to recently
> model a 60KHz magnetic loop with 4NEC2, but that's what my tinkering
> shows. If there were a deep notch, most of the home "atomic clock"
> receivers would be orientation sensitive and I would expect warnings
> in the docs.

I wouldn't say the *depth* of the null depends on the size of the loop.
I think it is a null with a Q, much like a resonance peak, but a null
of course. The smaller the loop, the sharper the null like a high Q

resonance, so the orientation becomes very critical. In theory at
least, the null is perfect, 0 signal.

>>> The BPSK signal is much better at rejecting interference and digging
>>> the signal out of the noise. I don't know exactly how much, but I'm
>>> sure it's in a NIST publication somewhere.
>>
>> That's for an ideal receiver. I have my limitations and I have no idea
>> how that will impact the reception.
>
> Well, you have to start somewhere, and an ideal receiver is a good
> place to start. The advantage is that reality only makes everything
> worse, never better. You should be able to build the BPSK
> demodulator, and then use a PC to decode the data. I've seen several
> such programs that do not require I/Q outputs. Here's one based on
> FreeBSD intended to sync the system clock to WWV/WWVH:
> <http://docs.freebsd.org/doc/4.0-RELEASE/usr/share/doc/ntp/driver36.htm>
> I'm sure there are others.

PC?!!! We don't need no stinking PCs! The demodulator is simple. The
signal is beat with a quadrature reference which will bring it down to 0
Hz. This gives two values, a sin and a cos signal. Take the ratio and
do an arcTan. This is a simple table lookup made simpler by some
convenient math relations. For example, the table only needs to cover
0ï¿½ to 45ï¿½ since the ratio can be swapped for 45ï¿½ to 90ï¿½ and the other
three quadrants distinguished by the sign bits.

Some folks would like you to think this has to be done like a high
fidelity receiver, but it only has to pull the signal out of the noise.

>> In my case I am not worried that the SNR isn't better, I just need a
>> strong enough signal to drive the LVDS input.
>
> Gain at 60KHz is very cheap. Watch out for overload issues. If you
> design it to work at full scale with whatever you get at 50uV/m, and
> the signal climbs to 100uV/m, your input A/D isn't going to be very
> happy. AGC will help, but I don't think it will be needed if you
> calculate your signal levels so that the A/D input amp isn't clipping.

If this is *signal* strength then it won't matter. If this is noise you
are talking about, I'm not sure it will be a problem, the signal will
still be able to be dug out with enough processing gain.

> Out of service for a day. It seems that about 30 years of chemistry
> experiments has finally destroyed much of the kitchen sink plumbing. I
> hate plumbing.

Not much fun, but then what it if you have to work on your knees and get
dirty? I don't enjoy working on my car anymore either.

--

Rick

94. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-12 00:32:23 UTC
From: rickman <gnuarm@gmail.com>
Message-ID: <khlt0e$r78$1@dont-email.me>
Source record: 93
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On 3/11/2013 5:54 AM, Rob wrote:
> rickman<gnuarm@gmail.com> wrote:
>> Funny, last night my two RCC's both updated like they should. One is an
>> analog clock and runs at 8x speed to get the hour ahead. In the fall it
>> does this to go 11 hours ahead. Quite a sight! They both did the job,
>> but my PC didn't update until it had been on for awhile, without being
>> connected to the I'net.
>
> In Europe we have DCF-77 which is at 77.5 kHz.
> The trouble receiving it is similar to WWVB.
> I have several clocks in the house but some of them have only very
> weak sync. Also, to save battery they only sync once every 12 hours
> or so. At DST change, they may display the wrong time for a couple
> of days, especially the one in the kitchen. I need to relocate it
> to a place where I know there is better signal.

Yes, noise can be a problem I understand. I am hoping to get the
bandwidth down much more than most receivers so the noise won't be so
big a factor. With a signal bandwidth of a handful of Hz, it should be
possible.

> The problem is (harmonics of) switching power supplies here as well.
> Once I had a big open-frame SMPS that I used to power my radio equipment
> and that switched around 25 kHz. Under the right circumstances, the
> 3rd harmonic wiped away all DCF-77 receiving within 5 meters or so.
> Old CRT computer monitors also were problematic.
>
> I presume you have some specific needs, low power being among them,
> to stay focussed on WWVB for your clock sync. Most computer users
> would use GPS now, or simply sync via the internet. GPS has a different
> receiving conditions problem, but at least it isn't so much affected
> by prominently present local interference.

Yes, this is actually a demo to illustrate how low power an FPGA can be.
An FPGA will run both the clock and the receiver and use power from
the environment rather than batteries.

> Of course a GPS receiver requires a lot more power than a WWVB receiver,
> although this has come down over the years. Using some sort of on/off
> switching (syncing with the received time and then having it run free
> for some time) may help a bit, the battery powered radio clocks do
> that as well.

Yes, the receiver itself only has to run part of the time, >10% perhaps.
The clock has to run 100% obviously. Interesting enough, the FPGA has

a base power consumption (0 Hz) of nearly 50% of the power budget and I am confident it will still make the goal.

--

Rick

95. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-12 01:21:22 UTC
From: Jeff Liebermann <jeffl@cruzio.com>
Message-ID: <cfvsj8lnrhu21sqqt74u12pjk1oast4b40@4ax.com>
Source record: 94
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Mon, 11 Mar 2013 18:10:23 -0400, rickman <gnuarm@gmail.com> wrote:

>> So, let's do the math and
>> guesswork.
>> <http://vk1od.net/calc/FS2RPCalc.htm>
>> I plugged in some guesses and recollections as to what the antenna
>> (Q=30) and amp (+20dB gain) were doing and got:
>> <http://802.11junk.com/jeffl/crud/WWVH-rx-signal-estimate.jpg>
>> -15.8dBm or about 36mv into 50 ohms. I amplified this about 20dB with
>> two or three U310 JFET's (I forgot what I did) to about 3V rms on the
>> scope. I didn't bother with the 50 ohm to scope input Z conversion.
>> Most of what I saw was noise, noise, and more noise. However, if I
>> was patient, I could see the data fade in an out. As I vaguely
>> recall, it was less than 1 division or about 0.1v change.
>
>I'm not sure why you used 1900 meters for the distance. I also don't
>get why you used 5 ohms for the receiver input impedance.

(Quick reply... still working on my expanding plumbing problem).

The 1900 meters is because I screwed up. It should be about 1900Km
from San Francisco to Denver. However, any distance greater than zero
will suffice for this calculation. The controlling numbers are the
100uV/m field strength, the -3dB antenna gain, and the receiver
bandwidth (5Hz). All of the other numbers can change without having
any effect on the recovered power. The 5 ohms rx input Z was because
the original antenna that I used, was a base loaded 100ft "whip"
antenna with a rather impedance. I couldn't decide if the field
strength to receive power form wanted the antenna impedance before the
50 ohm matching network, or if it treated the matching as part of the
antenna. I flipped a coin and chose 5 ohms. I guess for a loop,
100-200 ohms would be more appropriate. Again, the value makes no
difference in the calculations.

(Back to plumbing and fixing the 48" farm jack that my neighbor
borrowed and returned looking like a pretzel).

--
Jeff Liebermann jeffl@cruzio.com
150 Felker St #D http://www.LearnByDestroying.com
Santa Cruz CA 95060 http://802.11junk.com
Skype: JeffLiebermann AE6KS 831-336-2558

96. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-12 01:44:41 UTC
From: "Michael A. Terrell" <mike.terrell@earthlink.net>
Message-ID: <OvudnQ07bLcXFaPMnZ2dnUVZ_o2dnZ2d@earthlink.com>
Source record: 95
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

Jeff Liebermann wrote:
>
> (Back to plumbing and fixing the 48" farm jack that my neighbor
> borrowed and returned looking like a pretzel).

It sounds like your neighbor doesn't know jacks. ;-)

97. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-12 02:28:17 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1303112217340.5650@darkstar.example.org>
Source record: 96
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Mon, 11 Mar 2013, rickman wrote:

> Yes, this is actually a demo to illustrate how low power an FPGA can be. An
> FPGA will run both the clock and the receiver and use power from the
> environment rather than batteries.
>
But this is all relative. My first "atomic clock" ran on the same set of AA batteries for five or six year, and the second set is now four years old. The Centrios "atomic" wall clock (digital) uses one AA battery, I'm not sure how long that's been in. My watch is a Casio Waveceptor, 3 or 4 years old, which has a solar cell to refresh the battery and it's never been less than fully charged.

Fice or six years seems almost as good as 'shelf life" and while I had a small LCD clock (not "atomic") that seemed to run a long time on an AA cell, I'm not sure it was all that lower current than the 'atomic clock".

I'm more impressed by the clock running off 1.5v than that the batteries last reasonably long.

These things are amazing, considering the effort people used to put into making WWVB receivers, admittedly the "atomic clock" craze has very much benefitted from the power increase at the station.

I do orient them, but here in Montreal it's the rare night that they don't sync up, and I don't think since I've had more than one that they all miss the sync.

Michael

98. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-13 00:00:54 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <513fc1b6$0$54939$c3e8da3$e408f015@news.astraweb.com>
Source record: 99
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

On Mon, 11 Mar 2013 07:41:41 +0000, Jef wrote:

>> The second one is a current transformer. They both consist of coils
>> around a magnetic core driving some kind of load. The difference is
>> the source of power and that causes them to behave very differently as
>> well as being constructed differently.
>
>
> What you are describing is a difference in the source NOT a difference
> in the transformer!
>
> The transformer behaves exactly the same in both cases, the inversion is
> merely down to ohms law.
>
> A transformer is a transformer. The only time it gets tricky is when the
> core and saturation etc etc comes into play.
>
> Jeff

Very true. A transformer is a transformer and all obey the same equations. But that doesn't prevent real transformers from being called voltage or current transformers. And it doesn't prevent them from being constructed differently or their outputs behaving differently.

Part of the problem is that real-world AC current sources are rather rare. So current transformers are seldom connected as shown in the example that was given. They are usually connected in series between a voltage source and some other load, frequently for the purpose of measuring the current. This is what gives rise to the different constructions.

Voltage transformers have to withstand the source voltage across their primaries so they have to have enough turns to prevent the core from saturating. The actual number of turns depends on the voltage, frequency, and core size and material.

Current transformers are generally constructed to have minimum primary voltage drop so they have few turns on the primary, frequently only one. Considerations of frequency, core size and material still apply, of course. The differences in the name and construction are determined by the intended use. Many current transformers consist of a secondary winding on a toroidal core. The primary is supplied by the user by passing a wire through the hole in the core; thus, one turn.

For a loop antenna with a secondary, there is voltage across the antenna winding and current through it. Which is the secondary responding to? The current, since this is what produces the magnetic field. But, since this current is flowing through some number of turns and developing a voltage, it could also be considered a voltage transformer, which is why I said the distinction is blurred.

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

99. Converting from hollow to solid state

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-13 16:20:23 UTC
From: richard8123 <richard8123.b866919@radiobanter.com>
Message-ID: <richard8123.b866919@radiobanter.com>
Source record: 122

I have a turret drum that came from an old boatanchor (Murphy B40D).

Here is the front-end schematic:

http://www.portabletubes.co.uk/boats/schem1.jpg

I want to use this drum, but I want to employ transistors not valves.

Now today, I presume we can select a transistor to replace a valve, and it will be as good as, if not better than the old valve.

Any recommendations for suitable transistors for the local oscillator and the rf amplifiers? I'm trying not to have to modify the circuitry inside the drum.
Thanks.

Edit1: I'm thinking of using the hollow state circuitry after the Front-End. Best way to maintain the excellent audio of this receiver.

Edit2: I probably should draw out the tuned circuits only that are in the drum, post a link, and draw comments from that. Hopefully then a solid-state circuit can be built up.

--
richard8123

100. Re: Converting from hollow to solid state

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-13 17:23:20 UTC
From: richard8123 <richard8123.b86bd78@radiobanter.com>
Message-ID: <richard8123.b86bd78@radiobanter.com>
Source record: 124

richard8123;802678 Wrote:
> I have a turret drum that came from an old boatanchor (Murphy B40D).
>
> Edit2: I probably should draw out the tuned circuits only that are in
> the drum, post a link, and draw comments from that. Hopefully then a
> solid-state circuit can be built up.

Here is a picture of the Front End as is and a picture with the RF
valves removed, but keeping (for now) the valve oscillator and mixer.

http://tinyurl.com/cp8cjcf

Section 1 includes drum pins 1-5, section 2 pins 6-10, section 3 pins
11-15 and oscillator pins 16-20.

Need modern transistor cicuit for the two RF stages.

--
richard8123

101. Re: Antenna Simulation in LTspice

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-13 23:01:08 UTC
From: Tim Williams <tmoranwms@charter.net>
Message-ID: <khr0cipji1@dont-email.me>
Source record: 123
Cross-posted to: sci.electronics.design,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

"Jef" <jeff@assystems.com> wrote in message
news:khpa7e$so2$1@speranza.aioe.org...
>> For a loop antenna with a secondary, there is voltage across the
>> antenna
>> winding and current through it. Which is the secondary responding to?
>
>
> Since you can't have a current thorough the antenna without a voltage
> the answer is both, It is a chicken and an egg situation tied together
> by Ohm's Law.

That said, low impedances look like constant voltage sources or shorts, and carry a lot of current, while high impedances look like constant current sources or opens, and develop a lot of voltage. It's plenty of an approximation, but when you call an SWR < 1.2 a good match, it doesn't take much in either direction to produce that.

This is relative to system impedance (50 ohms, say), or if not in a system with characteristic impedances, then some factor of Zo (377 ohms). At "lumped constant" frequencies, Zo and SWR and stuff aren't all that relevant anymore, but the concepts always apply.

Tim

--
Deep Friar: a very philosophical monk.
Website: http://seventransistorlabs.com

102. AmateurLogic.TV for Friday 15 March 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-15 04:43:04 UTC
From: rec-radio-info-request@panix.com
Message-ID: <bcaec5182c94cfca5304d7ef45d1@google.com>
Source record: 125
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

AmateurLogic.TV

//
AmateurLogic.TV Episode 51

Posted: 14 Mar 2013 03:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic51_hi
.wmv

Tommy simplifies D-Star Callsign Routing. Peter visits the Wyong Field Day
(Hamfest). Emile has some cheap analog and digital SSTV solutions. And

George builds the Arduinolator (Arduino Square Wave Oscillator) and shows
just how easy and fun it can be to experiment with microcontrollers.

1:00:54 of ALTV fun!
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic51_hi
.wmv

103. Re: Converting from hollow to solid state

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-17 04:45:34 UTC
From: vk7ro@netspace.net.au
Message-ID: <5145478f.1658343@news.netspace.net.au>
Source record: 126

G'day,

I have modified valve receivers in the past by using dual gate
mosfets. In my parts drawer now, I still have a couple of MFE131s,
but any dual gate mosfet should work OK although now they are usually
only available in surface mount.

I also used single gate juunction fets for the oscillator and BFO.
The ones I have left are MPF102.

Fets work OK in valve receivers as RF ampliiers, but not well as IF
amplifiers where the primary of the IF tramsformer is shunted by the
low output impedance of the fet.

Your B40 circuit looks a little tricky to use. Probably a resitive
load for the second RF amplifier would be OK (about 1K?) and I think
some experimenting with the oscillator circuit would be necessary to
find a satifactory arrangement.

Good luck. I reckon you'll be busy for a while!

73, Ric, VK7RO.

On Wed, 13 Mar 2013 16:20:23 +0000, richard8123
<richard8123.b866919@radiobanter.com> wrote:

>
>I have a turret drum that came from an old boatanchor (Murphy B40D).
>
>Here is the front-end schematic:
>
>http://www.portabletubes.co.uk/boats/schem1.jpg
>
>I want to use this drum, but I want to employ transistors not valves.
>
>Now today, I presume we can select a transistor to replace a valve, and
>it will be as good as, if not better than the old valve.
>
>Any recommendations for suitable transistors for the local oscillator
>and the rf amplifiers? I'm trying not to have to modify the circuitry
>inside the drum.
>Thanks.
>
>Edit1: I'm thinking of using the hollow state circuitry after the
>Front-End. Best way to maintain the excellent audio of this receiver.
>
>Edit2: I probably should draw out the tuned circuits only that are in

>the drum, post a link, and draw comments from that. Hopefully then a
>solid-state circuit can be built up.
>
>
>
>
>--
>richard8123

104. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-17 14:56:25 UTC
From: raypsi <RBorowiak@gmail.com>
Message-ID: <ce6667c0-7b63-4efb-a8ed-45968bff001f@googlegroups.com>
Source record: 127

On Saturday, March 2, 2013 11:00:49 PM UTC-5, Frank wrote:
> Clamshell-looking enclosure on small AC power transformers. Magnetic
>
> shielding to prevent interference with nearby wires?

IMO it's an electrical code requirement or navy military designation every military grade transformer I've see is hermetically sealed

73 de n8zu

105. Re: Converting from hollow to solid state

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-17 15:11:56 UTC
From: raypsi <RBorowiak@gmail.com>
Message-ID: <cfacb6f8-05c3-4fe4-bf39-75010063dc65@googlegroups.com>
Source record: 128

HeY OT:

I would use cascode mosfets 'cause that's the only way to eliminate the Miller effect they used to make valve tuners that cascoded triodes then they invented valves that could get around the miller effect so no more cascode triodes
IMO you could use matched GaS fets on 7pin or 9 pin valve plugs then in that circuit your going to have to transform the low output impedance of the fets to the high impedance out of the valves with a small toroid transformer
and bias the gates properly

73 de n8zu

106. Re: Converting from hollow to solid state

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-18 00:54:23 UTC
From: Arid ace <nonsmoker@freedom.smokes.oil>
Message-ID: <9inck8l29ij69ofl23s9l12ge45fntv8v6@4ax.com>
Source record: 129

On Wed, 13 Mar 2013 16:20:23 +0000, richard8123
<richard8123.b866919@radiobanter.com> wrote:

>
>I have a turret drum that came from an old boatanchor (Murphy B40D).
>
>Here is the front-end schematic:
>
>http://www.portabletubes.co.uk/boats/schem1.jpg
>
>I want to use this drum, but I want to employ transistors not valves.
>
>Now today, I presume we can select a transistor to replace a valve, and
>it will be as good as, if not better than the old valve.

Replacing valves with semiconductors can result in much better performance but such an operation (optimizing for performance) rarely is a one to one replacement.

>Any recommendations for suitable transistors for the local oscillator
>and the rf amplifiers? I'm trying not to have to modify the circuitry
>inside the drum.
>Thanks.

The two RF amps, the oscillator and the mixer could be replaced with BF981, a dual gate mosfet that can be handled easily (no SMD). However, with a one to one replacement, R113 & 114 have to be paralleled with an RF choke, >= 10 x the inductance of the primary of TR103. R117 will have to be changed to a much smaller value, about 100 ohm. The second gate of the mixer BF981 must be connected to R120 / C130. No bias required. What has to be changed too is the supply voltage: for the BF981, Vds <=20V.

>
>Edit1: I'm thinking of using the hollow state circuitry after the
>Front-End. Best way to maintain the excellent audio of this receiver.
>
>Edit2: I probably should draw out the tuned circuits only that are in
>the drum, post a link, and draw comments from that. Hopefully then a
>solid-state circuit can be built up.

A better modification, based on the much higher gain from the BF981 as compared to the RF and mixer valves, would be to omit the 2nd RF stage IOW use TR102 and TR103 as bandpass filter instead. Instead of a BF981 as mixer, better performance could be obtained from a Gilbert cell with jfets like (matched) J310 or preferably, single gate small-signal mosfets like the BF987, because of its low Cgs of 35fF.

Regards,
Jan

107. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-18 04:58:53 UTC
From: Frank <fatherhaskell@yahoo.com>
Message-ID: <01b63c26-3132-4ce1-86ad-cec520e62b44@o5g2000vbp.googlegroups.com>
Source record: 130

On Mar 17, 10:56 am, raypsi <RBorow...@gmail.com> wrote:
> On Saturday, March 2, 2013 11:00:49 PM UTC-5, Frank wrote:
> > Clamshell-looking enclosure on small AC power transformers. Magnetic
>
> > shielding to prevent interference with nearby wires?
>
> IMO it's an electrical code requirement or navy military designation every military grade transformer I've see is hermetically sealed

True of the several WWII / Korea vintage transformers in my junk box.

108. 4185 Solution manuals to Mechanics, Mechanical Engineering and Aerospace Engineering Books

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-21 01:13:22 UTC
From: abnew17@gmail.com
Message-ID: <d1d01723-b768-485e-9619-e289b861f39b@googlegroups.com>
Source record: 131

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Solution manual Materials and Processes in Manufacturing (9th Ed., E. Paul DeGarmo, J. T. Black, Ronald A. Kohser)
Solution manual DeGarmo's Materials and Processes in Manufacturing (10th Ed., E. Paul DeGarmo, J. T. Black, Ronald A. Kohser)
Solution Manual DeGarmo's Materials and Processes in Manufacturing (11th Ed., J. T. Black, Ronald A. Kohser)
Solution manual Foundations of Materials Science and Engineering (3rd Ed, Smith)
Solution manual Foundations of Materials Science and Engineering (4th Ed, Smith & Hashemi)
Solution manual Foundations of Materials Science and Engineering (5th Ed, Smith & Hashemi)
Solution manual Engineering Materials Science (Milton Ohring)
Solution manual Metal Fatigue in Engineering (2nd Ed., Stephens, Fatemi & Fuchs)
Solution manual Mechanical Behavior of Materials (3rd Ed., Dowling)
Solution Manual Mechanical Behavior of Materials (4th Ed., Dowling)
Solution manual Mechanical Behavior of Materials (W.F. Hosford)
Solution manual Mechanical Behavior of Materials (Keith Bowman)
Solution manual Deformation and Fracture Mechanics of Engineering Materials (4th Ed., Richard Hertzberg)
Solution Manual Deformation and Fracture Mechanics of Engineering Materials (5th Ed., Richard Hertzberg, Richard Vinci, Jason Hertzberg)
Solution manual From Polymers to Plastics (A.K. van der Vegt)
Solution manual Nanoengineering of Structural, Functional and Smart Materials (Mark Schulz, Ajit Kelkar, Mannur Sundaresan)
Solution manual Principles Of Polymer Systems (5th Ed., by Ferdinand Rodriguez, Claude Cohen, Christopher Ober, Lynden Archer)
Solution manual Introduction to the Thermodynamics of Materials (4th Ed. David Gaskell)
Solution manual Structure and Properties of Engineering Materiales (5th Ed., Daniel Henkel & Alan Pense)
Solution manual Plastics : Materials and Processing (3rd Ed., Strong)
Solution manual Engineering Materials : Properties and Selection (8th Ed., Budinski)
Solution manual Engineering Materials : Properties and Selection (9th Ed., Budinski)
Solution manual Introduction to Materials Science for Engineers (6th Ed., Shackelford)
Solution manual Introduction to Materials Science for Engineers (7th Ed., Shackelford)
Solution manual Introduction to Materials Science for Engineers - International Edition (7th Ed., Shackelford)
Solution manual Creative Design of Products and Systems (Saeed Niku)
Solution manual Materials : Engineering, Science, Processing and Design (1st Ed., Michael Ashby, Hugh Shercliff & David Cebon)
Solution manual Materials : Engineering, Science, Processing and Design (2nd Ed., Michael Ashby, Hugh Shercliff & David Cebon)
Solution manual Engineering Materials Vol. 1 : An Introduction to Properties, Applications and Design (3rd Ed., Michael Ashby & David Jones)
Solution manual Engineering Materials Vol. 1 : An Introduction to Properties, Applications and Design (4th Ed., Michael Ashby & David Jones)
Solution manual Engineering Materials Vol. 2 : An Introduction to Microstructures, Processing and Design (3rd Ed., Michael Ashby & David Jones)
Solution manual Materials and the Environment : Eco-informed Material Choice (Michael Ashby)
Solution manual Materials and the Environment : Eco-informed Material Choice (2nd Ed., Michael Ashby)

Solution manual Principles of Corrosion Engineering and Corrosion Control (Zaki Ahmad)
Solution manual Corrosion and Corrosion Control : An Introduction to Corrosion Science and Engineering (4th Ed., R. Winston Revie & Herbert H. Uhlig)
Solution manual Analysis and Performance of Fiber Composites (3rd Ed., Bhagwan Agarwal, Lawrence Broutman & K. Chandrashekhara)
Solution manual Basic Engineering Plasticity : An Introduction with Engineering and Manufacturing Applications (David Rees)
Solution manual Steels : Microstructure and Properties (3rd Ed. Bhadeshia & Honeycombe)
Solution manual Theory of Plasticity (3rd Ed. Jagabanduhu Chakrabarty)
Solution manual Plastics : Microstructure and Engineering Applications (3rd Ed., Nigel Mills)
Solution manual Laser Processing of Engineering Materials : Principles, Procedure and Industrial Application (John Ion)
Solution manual Sintering : Densification, Grain Growth and Microstructure (Suk-Joong Kang)
Solution manual Biomaterials : An Introduction (3rd Ed., Joon Park & R.S. Lakes)
Solution manual Biomaterials : The Intersection of Biology and Materials Science (Temenoff & Mikos)
Solution manual Biomaterials Science : An Introduction to Materials in Medicine (2nd Ed., Ratner, Hoffman, Schoen & Lemons)
Solution manual Tissue Engineering (Bernhard O. Palsson & Sangeeta N. Bhatia)
Solution manual Tissue Engineering (Clemens van Blitterswijk, et al.)
Solution manual Introduction to Materials Management (6th Ed., Arnold, Chapman & Clive)
Solution manual Fundamentals of Solid State Engineering (2nd Ed., Manijeh Razeghi)
Solution manual Smart Electronic Materials : Fundamentals and Applications (Jasprit Singh)
Solution manual Composite Materials : Science and Engineering (2nd Ed., Krishan K. Chawla)
Solution manual Composite Materials : Science and Engineering (3rd Ed., Krishan K. Chawla)
Solution manual Laminar Composites (George Staab)
Solution manual Physical Metallurgy and Advanced Materials (7th Ed., R.E. Smallman & A.H.W. Ngan)

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contact me to : mattosbw1@gmail.com mattosbw1(at)gmail.com

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119. Re: 4185 Solution manuals & Test banks to Materials Engineering Books

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-23 12:28:25 UTC
From: Bill M <radioexray@geeeemail.com>
Message-ID: <kik75k0121i@news6.newsguy.com>
Source record: 142

abnew17@gmail.com wrote:
> I do not review the forums, just send me an email. Please do not use emails from servers "LIVE" ,

all they are take as spam emails in my inbox.
>

> contact me to : mattosbw1@gmail.com mattosbw1(at)gmail.com
>
>
> ----------

Gawd, I'd hate to get spam in my newsgroup inbox.

120. A homebrew RF Milliammeter

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-23 14:49:06 UTC
From: vu2nan <vu2nan.b939818@radiobanter.com>
Message-ID: <vu2nan.b939818@radiobanter.com>
Source record: 143

Here's the link.

http://nandustips.blogspot.in/2013/03/a-homebrew-rf-milliammeter.html

73,

Nandu.

--
vu2nan

121. Re: Metal transformer enclosure purpose?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-25 15:07:25 UTC
From: highlandham <highlandham.nospam@rfburns.eu>
Message-ID: <kipp3h$77j$1@dont-email.me>
Source record: 144

On 18/03/13 04:58, Frank wrote:
> On Mar 17, 10:56 am, raypsi <RBorow...@gmail.com> wrote:
>> On Saturday, March 2, 2013 11:00:49 PM UTC-5, Frank wrote:
>>> Clamshell-looking enclosure on small AC power transformers. Magnetic
>>
>>> shielding to prevent interference with nearby wires?
>>
>> IMO it's an electrical code requirement or navy military designation every military grade transformer I've see is hermetically sealed
>
> True of the several WWII / Korea vintage transformers in my junk
> box.
>
==========
A metal enclosure (apart for mechanical protection) can be avoided by
using toroid transformers ,similar to RF toroids ,not requiring a
shielding can like cylinder shape inductors with or without a ferrous
core ,which need a screening can.

Frank GM0CSZ / KN6WH

122. Re: Quadruple Sideband?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-26 17:04:12 UTC
From: jasondalesweet@gmail.com
Message-ID: <1db248ad-1bc8-4abf-9700-1fd136e926eb@googlegroups.com>
Source record: 145

I just got a Quad Sideband signal yesterday.

Here's how it works for AM.

When you modulate 100%, you get one on each side, 200% two on each side.

They act like additional amplitude, like an amplifier.

The more sidebands there are, the louder it will be x1,x2,x3,x4 louder.

123. Re: Quadruple Sideband?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-26 17:31:48 UTC
From: jimp@specsol.spam.sux.com
Message-ID: <4l292a-adq.ln1@mail.specsol.com>
Source record: 146

jasondalesweet@gmail.com wrote:
> I just got a Quad Sideband signal yesterday.
>
> Here's how it works for AM.
>
> When you modulate 100%, you get one on each side, 200% two on each side.
>
> They act like additional amplitude, like an amplifier.
>
> The more sidebands there are, the louder it will be x1,x2,x3,x4 louder.

Babbling nonsense.

--
Jim Pennino

124. Re: Quadruple Sideband?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-27 04:11:46 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1303270008540.16416@darkstar.example.org>
Source record: 147

On Tue, 26 Mar 2013, jimp@specsol.spam.sux.com wrote:

> jasondalesweet@gmail.com wrote:
>> I just got a Quad Sideband signal yesterday.
>>
>> Here's how it works for AM.
>>
>> When you modulate 100%, you get one on each side, 200% two on each side.
>>
>> They act like additional amplitude, like an amplifier.
>>
>> The more sidebands there are, the louder it will be x1,x2,x3,x4 louder.
>
> Babbling nonsense.
>
You should see the original 1994 thread, whre someone speculates
about something but is making some sort of sense, if ill informed, and the
eight replies that the message got back then.

Yes indeed, this is yet another case of someone replying to an old message
via google, and as is the case virtually every time, the first person
replying has really nothing to add.

Michael VE2BVW

125. Re: Quadruple Sideband?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-27 22:39:46 UTC
From: Channel Jumper <Channel.Jumper.b993278@radiobanter.com>
Message-ID: <Channel.Jumper.b993278@radiobanter.com>
Source record: 149

'Michael Black[_2_ Wrote:
> ;803134']On Tue, 26 Mar 2013, jimp@specsol.spam.sux.com wrote:
> -
> jasondalesweet@gmail.com wrote:-
> I just got a Quad Sideband signal yesterday.
>
> Here's how it works for AM.
>
> When you modulate 100%, you get one on each side, 200% two on each
> side.
>
> They act like additional amplitude, like an amplifier.
>
> The more sidebands there are, the louder it will be x1,x2,x3,x4
> louder.-
>
> Babbling nonsense.
> -
> You should see the original 1994 thread, where someone speculates
> about something but is making some sort of sense, if ill informed, and
> the
> eight replies that the message got back then.
>
> Yes indeed, this is yet another case of someone replying to an old
> message
> via Google, and as is the case virtually every time, the first person
> replying has really nothing to add.
>
>
> Michael VE2BVW

I have electronic and radio books that are 70 years old and nothing
inside of any of them ever came close to the confabulations this person
proposes.

You have a carrier - which does nothing except carry the intelligence
and you have a upper and a lower side band - which is the intelligence
that rides upon the carrier. And that is it for AM!

In single side band you suppress one side band which forces the energy
up into the other side band.

When Regency came out with Double Suppressed Side Band, they suppressed
both the carrier and one side band.. The model I had was the Range Gain
II or the Imperial. Either model required another radio that could do

the same thing in order for it to work - else you ended up talking to yourself.

When the Japanese came into the market with the cheap CB radios, all that technology was forgotten and the companies that made it were soon forced to do other things or get out of the business because the days of quality American Made CB radios came to an end when Cobra came out with a $39.00 AM CB that did the same thing as the more expensive units - just didn't have SSB or DSSB...

Television used a mode called Vestigial side band where part of the one side band was suppressed and the remaining energy was diverted up into the remaining side band.

If there was a way to double the power, don't you think that someone would have came up with it long before now?
AM for the most part is dead as far as commercial broadcast goes and the only people who participates in it on Amateur Radio are the ones with the old boat anchors who wants to keep their tubes warm, who thinks that they are doing something when they broadcast with their old equipment.

It usually ends up being a bunch of old lids who talks just to hear themselves talk, with nothing of no importance to say and just looking for an audience...

--
Channel Jumper

126. Re: Quadruple Sideband?

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-27 23:02:04 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <51537a6c$0$28380$c3e8da3$aae71a0a@news.astraweb.com>
Source record: 148

On Tue, 26 Mar 2013 10:04:12 -0700, jasondalesweet wrote:

> I just got a Quad Sideband signal yesterday.
>
> Here's how it works for AM.
>
> When you modulate 100%, you get one on each side, 200% two on each side.
>
> They act like additional amplitude, like an amplifier.
>
> The more sidebands there are, the louder it will be x1,x2,x3,x4 louder.

Too bad he didn't wait until Monday; it would be appropriate then!

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

127. AmateurLogic.TV for Thursday 28 March 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-28 04:25:28 UTC
From: rec-radio-info-request@panix.com
Message-ID: <f46d04447119d43e3a04d8f48a95@google.com>
Source record: 150
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

AmateurLogic.TV

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AmateurLogic.TV Episode 52

Posted: 27 Mar 2013 03:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic52_hi
.wmv

George visited GigaParts in Huntsville Alabama for Ham Radio Day on March
16th. We take a look at the store and visit with

some of the manufacturers reps to find out what’s new. It was a great event
at a great ‘Candy Store’.

38:45 of extra ALTV fun!
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic52_hi
.wmv

128. TO-3 transistor socket

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-28 13:20:51 UTC
From: JIMMIE <JIMMIEDEE123@yahoo.com>
Message-ID: <0de126fa-f646-4d79-9e11-9732caff47ec@googlegroups.com>
Source record: 37

I want to add sockets TO-3 for the pass transistors in my 12 volt power supply. The trouble is I can not find current(I) specifications for the sockets. I really dont know what I should expect for a spec, guessing 10 amps for a good quality unit. Any help would be greatly appreciated.

KD4RQE
Jimmie

129. Re: A homebrew RF Milliammeter

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-28 14:56:00 UTC
From: vu2nan <vu2nan.b9a2f98@radiobanter.com>
Message-ID: <vu2nan.b9a2f98@radiobanter.com>
Source record: 39

Here's an update.

http://nandustips.blogspot.in/2013/03/a-homebrew-rf-milliammeter.html

73,

Nandu.

--
vu2nan

130. Re: TO-3 transistor socket

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-03-28 15:06:36 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <l4WdncU50frgwcnMnZ2dnUVZ_rqdnZ2d@earthlink.com>
Source record: 38

"JIMMIE" <JIMMIEDEE123@yahoo.com> wrote in message
news:0de126fa-f646-4d79-9e11-9732caff47ec@googlegroups.com...
I want to add sockets TO-3 for the pass transistors in my 12 volt power supply. The trouble is I can not find current(I) specifications for the sockets. I really dont know what I should expect for a spec, guessing 10 amps for a good quality unit. Any help would be greatly appreciated.

It depends on the socket. They seem to average about 10 amps for the most part. Some are rated from 5 to 20 amps. There are some special ones out that seem to be rated for about 50 amps. I think they are made for some special large pin to3 size transistors.

Here is a data sheet on one of the 'normal' types.
http://www.mouser.com/catalog/specsheets/5068080G.pdf

131. SolderSmoke Podcast for Monday 1 April 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-01 10:43:20 UTC
From: rec-radio-info-request@panix.com
Message-ID: <f46d0447952ba4981b04d94a497e@google.com>
Source record: 40
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

```
SolderSmoke Podcasts

////////////////////////////////////////
SolderSmoke151`

Posted: 01 Apr 2013 01:52 AM PDT

SolderSmoke issue 151
This posting includes a media file:
http://www.soldersmoke.com/soldersmoke151.mp3
```

132. A Steampunk RF Milliammeter

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-03 15:07:01 UTC
From: vu2nan <vu2nan.ba21898@radiobanter.com>
Message-ID: <vu2nan.ba21898@radiobanter.com>
Source record: 41

Here's the link.

http://tinyurl.com/chh59l6

Many thanks.

73,

Nandu.

--
vu2nan

133. A Steampunk RF Milliammeter

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-05 08:06:46 UTC
From: vu2nan <vu2nan.ba46738@radiobanter.com>
Message-ID: <vu2nan.ba46738@radiobanter.com>
Source record: 42

Please do check this out.

http://tinyurl.com/chh59l6

73,

Nandu.

--
vu2nan

134. Re: TO-3 transistor socket

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-05 16:47:08 UTC
From: highlandham <highlandham.nospam@rfburns.eu>
Message-ID: <kjmv1p$9u3$1@dont-email.me>
Source record: 43

On 28/03/13 13:20, JIMMIE wrote:
> I want to add sockets TO-3 for the pass transistors in my 12 volt power supply. The trouble is I can not find current(I) specifications for the sockets. I really dont know what I should expect for a spec, guessing 10 amps for a good quality unit. Any help would be greatly appreciated.
>
> KD4RQE
> Jimmie
>
Pass transistors need a heatsink ,so why should you need sockets.
Connection with a PCB located circuit is usually done with ï¿½sliding solder tagsï¿½ wired to the PCB , but of course you can also directly solder the wires to the transistor pins.

Frank GM0CSZ / KN6WH

135. AmateurLogic.TV for Friday 12 April 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-12 04:17:40 UTC
From: rec-radio-info-request@panix.com
Message-ID: <20cf3011e125bbc38404da222eb5@google.com>
Source record: 44
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

AmateurLogic.TV

//
AmateurLogic.TV Episode 53

Posted: 11 Apr 2013 03:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic53_hi.wmv

George answers the question ‘Can you work PSK31 on the Raspberry Pi’.
We bring you a behind the scenes view of ‘The Making of AmateurLogic.TV’.
Peter visits the Canberra Deep Space Communication Complex and gets a special tour just for our viewers.
Plus we announce our exciting Field Day Giveaway Contest with great gear from Icom, GigaParts, MFJ and Heil Sound. More details at amateurlogic.tv/contest.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic53_hi.wmv

136. An adjustable RF Ammeter

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-13 10:29:51 UTC
From: vu2nan <vu2nan.baef0b0@radiobanter.com>
Message-ID: <vu2nan.baef0b0@radiobanter.com>
Source record: 46

Do check this out.

http://nandustips.blogspot.in/2013/04/an-adjustable-rf-ammeter.html

Many thanks.

73,

Nandu.

--
vu2nan

137. RF switches

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-14 20:01:15 UTC
From: garyr <garyr@fidalgo.net>
Message-ID: <kkf2bi$uf5$1@speranza.aioe.org>
Source record: 47

I'm trying to build a 80/40 meter receiver and I'd like to be able to switch the RF input between the two bandpass filters. This sort of thing is usually done with relays but I'd like to avoid that if possible. A SN74CBT3306 would be ideal but I think the on-resistance would be too high, thought it's hard to tell from the data sheet. Are there other devices that would be suitable for this application? What do you think about using 2N7000's for this job?

The input and output capacitors of the double-tuned filters are 2200 & 2700 pF so the stray capacitance of the switching circuitry would not affect the response very much.

Thanks in advance

138. Re: RF switches

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-14 23:42:45 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1304141938310.20313@darkstar.example.org>
Source record: 48

On Sun, 14 Apr 2013, garyr wrote:

> I'm trying to build a 80/40 meter receiver and I'd like to be able to
> switch the RF input between the two bandpass filters. This sort of thing is
> usually done with relays but I'd like to avoid that if possible. A
> SN74CBT3306 would be ideal but I think the on-resistance would be too high,
> thought it's hard to tell from the data sheet. Are there other devices that
> would be suitable for this application? What do you think about using
> 2N7000's for this job?
>
> The input and output capacitors of the double-tuned filters are 2200 & 2700
> pF so the stray capacitance of the switching circuitry would not affect the
> response very much.
>
> Thanks in advance
>

I don't recall every seeing CMOS switches used for switching LC cicuits.
Maybe for switching stages, but I can't think of an example of that.

If it's not a switch, which has the disadvantage of not being close to
where the circuit needs switching, it's a relay. If it's not a relay,
then switching diodes are called in. Lots of people were using small
signal diodes for switching in the early days, then PIN diodes came along
they got the glory. The one issue seems that under some circumstances,
they can add distortion.

In the very old days, the tuned circuits were plugged in, very troublesome
but it avoided switches. Once semicondcutors came along, they were cheap
and small enough that duplication often made sense, switch whole stages,
including the tuned circuits, rather than switching the coils alone. That
gives you more leeway, with active stages in there, any loss from CMOS
switches goes way down.

Michael VE2BVW

139. Re: RF switches

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-15 02:54:26 UTC
From: Arid ace <nonsmoker@freedom.smokes.oil>
Message-ID: <pnpmm8d30s1qge5ro50hkidq48btpndg2p@4ax.com>
Source record: 50

On Sun, 14 Apr 2013 13:01:15 -0700, "garyr" <garyr@fidalgo.net> wrote:

>I'm trying to build a 80/40 meter receiver and I'd like to be able to
>switch the RF input between the two bandpass filters. This sort of thing is
>usually done with relays but I'd like to avoid that if possible. A
>SN74CBT3306 would be ideal but I think the on-resistance would be too high,
>thought it's hard to tell from the data sheet. Are there other devices that
>would be suitable for this application? What do you think about using
>2N7000's for this job?
>
>The input and output capacitors of the double-tuned filters are 2200 & 2700
>pF so the stray capacitance of the switching circuitry would not affect the
>response very much.
>
>Thanks in advance

In receivers like for instance those of ICOM (R71 etc.) and Kenwood (R1000 etc.), the input and IF bandpass filters were switched with diodes (N4148 or equivalent). With a current of ~10 mA through a diode this works rather well, regarding both IM and loss. But because at that time circuits weren't simulated, it was overlooked that due to the diode capacitance, filters supposed to be switched out, still exerted (often a nasty) influence. To eliminate that, you'll also have to use a diode switch as a short circuit for the filter not in use.

Jan

140. Re: RF switches

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-15 10:23:18 UTC
From: bilou <padepub@free.fr>
Message-ID: <kkgk9kmaq1@adenine.netfront.net>
Source record: 51

"garyr" <garyr@fidalgo.net> wrote in message
news:kkf2bi$uf5$1@speranza.aioe.org...
> I'm trying to build a 80/40 meter receiver and I'd like to be able to
> switch the RF input between the two bandpass filters. This sort of thing
> is
> usually done with relays but I'd like to avoid that if possible. A
> SN74CBT3306 would be ideal but I think the on-resistance would be too
> high,
> thought it's hard to tell from the data sheet. Are there other devices
> that
> would be suitable for this application? What do you think about using
> 2N7000's for this job?
>
> The input and output capacitors of the double-tuned filters are 2200 &
> 2700
> pF so the stray capacitance of the switching circuitry would not affect
> the
> response very much.
>
> Thanks in advance
Hello
IMHO diodes switches are by far the way to go.
They have been used for years in TV tuners at UHF frequencies.
They are very small and allow to place the switch exactly where it should
be.
They can support power as in TX/RX or att�nuator swithes.
Cmos IC's are used too in some SDR receivers but having to bring RF tracks
to a small SMD implies stray capacitance and inductance problems.

--- news://freenews.netfront.net/ - complaints: news@netfront.net ---

141. Re: RF switches

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-17 00:06:04 UTC
From: bilou <padepub@free.fr>
Message-ID: <516de770$0$2044$426a34cc@news.free.fr>
Source record: 59

"Arid ace" <nonsmoker@freedom.smokes.oil> wrote in message
news:pnpmm8d30s1qge5ro50hkidq48btpndg2p@4ax.com...
But because at that time circuits weren't
> simulated, it was overlooked that due to the diode capacitance, filters
> supposed
> to be switched out,
Hi
Such effects do exist with any switches.
Behaviour of filters with a very mismathed input and output impedances is
very
unpredictable.
For switching IF filters logic would be to cascade them and shunt the too
narrow ones.
I have never seen this implemented.

142. Re: RF switches

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-17 04:18:51 UTC
From: Arid ace <nonsmoker@freedom.smokes.oil>
Message-ID: <u97sm89ipaf3akhdtdctnciq3o9n6dd685@4ax.com>
Source record: 60

On Wed, 17 Apr 2013 02:06:04 +0200, "bilou" <padepub@free.fr> wrote:

>
>"Arid ace" <nonsmoker@freedom.smokes.oil> wrote in message
>news:pnpmm8d30s1qge5ro50hkidq48btpndg2p@4ax.com...
> But because at that time circuits weren't
>> simulated, it was overlooked that due to the diode capacitance, filters
>> supposed
>> to be switched out,
>Hi
>Such effects do exist with any switches.

14p DIP reed relays (2 relays / package) already suggested by their
construction, to short circuit filters not in use, in order to prevent spurious
responses. That was in the 80s. Too expensive for mass production though.

>Behaviour of filters with a very mismathed input and output impedances is
>very
>unpredictable.

What matters is the spurious response via parasitic and other undesirable
capacitances or common inductances.

>For switching IF filters logic would be to cascade them and shunt the too
>narrow ones.
>I have never seen this implemented.

With each IF filter adding ~6 dB loss, either something has to be done about
gain correction or S-meter display. I built the 455 KHz IF with 2 filters for
each bandwidth and a low gain (~12 dB max) dual gate mosfet amplifier between
the filters. Switching bandwidth included removing the supply of the mosfets not
in use. The result was excellent - I verified that with a spectrum analyzer.
>

143. An adjustable RF Ammeter

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-19 07:52:19 UTC
From: vu2nan <vu2nan.bb6b208@radiobanter.com>
Message-ID: <vu2nan.bb6b208@radiobanter.com>
Source record: 82

Do check this out.

http://nandustips.blogspot.in/2013/04/an-adjustable-rf-ammeter.html

73,

Nandu.

--
vu2nan

144. Re: CW transmitter

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-04-22 04:10:19 UTC
From: kkh271@yahoo.com
Message-ID: <fb41c31e-43f7-45c7-830e-a5d29b98145d@googlegroups.com>
Source record: 83

Hi Everybody

I would like to make a CW Tansmitter, say 20 W, higher HF (25 MHz or more) for fishing boat. Is there any idea where I can find circuit and kits. Someone with experience in this field would be able to advise effectively. Your help would be very much appreciated.

Regards

Kazi

145. AmateurLogic.TV for Monday 13 May 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-13 04:36:08 UTC
From: rec-radio-info-request@panix.com
Message-ID: <001a11c2fe34be0ce304dc920dcb@google.com>
Source record: 84
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

AmateurLogic.TV

//
AmateurLogic.TV Episode 54

Posted: 12 May 2013 03:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic54_hi
.wmv

We explore three different Remote Control options to control a station from
anywhere in the world. George and Tommy prepare for Dayton Hamvention. And
some really funny stuff…
1:10:00 of interesting and entertaining ALTV.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic54_hi
.wmv

146. Converting FM Transistor radio to 350khz

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-13 09:53:43 UTC
From: Camerart <Camerart.bd67228@radiobanter.com>
Message-ID: <Camerart.bd67228@radiobanter.com>
Source record: 85

Hi,

I would like to know if it is possible to modify (simply) a transistor radio so it can pick up frequencies on other ranges. I particularly want 300 to 400 khz FM.

Cheers, Camerart.

--
Camerart

147. Re: Converting FM Transistor radio to 350khz

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-13 14:33:01 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <VM-dnY4Psu8AZA3MnZ2dnUVZ_j-dnZ2d@earthlink.com>
Source record: 86

"Camerart" <Camerart.bd67228@radiobanter.com> wrote in message
news:Camerart.bd67228@radiobanter.com...
>
> Hi,
>
> I would like to know if it is possible to modify (simply) a transistor
> radio so it can pick up frequencies on other ranges. I particularly
> want 300 to 400 khz FM.
>
> Cheers, Camerart.
>

It would not be very easy to do that. It would be easier to take some of
the ICs that are designed around those frequencies and build a FM receiver.

It is easy to modify a FM receiver to go from about 50 to 120 MHZ. Outside
this range requires more work.

148. Re: Converting FM Transistor radio to 350khz

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-13 19:29:45 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1305131520350.18728@darkstar.example.org>
Source record: 87

On Mon, 13 May 2013, Camerart wrote:

>
> Hi,
>
> I would like to know if it is possible to modify (simply) a transistor
> radio so it can pick up frequencies on other ranges. I particularly
> want 300 to 400 khz FM.
>
What are you trying to do?

There's virtually nothing at 300 to 400KHz, and it won't be FM. So I
don't know if you typed that wrong, or have some other scheme in mind.

There was a time when retuning FM broadcast radios was't uncommon, move
them to the "public service band" or the amateur 2M band. Shorten
the front end coils (or spread them out more, they would generally be air
wound) or see if the trimmer capacitors are such that they can returne to
the other range (higher in frequency). But there were problems. The
most important is that FM broadcast is wideband FM, while the 2way of the
public service band or 2m amateur is narrow band. At best little audio
would be recovered. The FM broadcast signals are wideband, so the
receivers are wideband, so even if you could recover the modulation,
adjacent signals could interfere.

If you had a need for a wideband FM receiver, then yes, the front end
could be modified or a converter put ahead of it.

But it's still not clear what you want. The 300 to 400KHz in your post
suggests you want to add an FM detector to an existing radio, that happens
to have a 455KHz or so IF. If that's the case, find something with a
matching IF that is for FM. COrdless phones, better baby monitors, better
49MHz walkie talkies, old clunky cellphones, they all have FM IF strips,
and generally landed at 455KHz or 450KHz. You could extract the FM IF
strip and use it as a module. WHether it's 455KHz or 450Khz would vary on
the design, you might have to poke around, or make do witha 450KHz IF
strip (which may not matter, since many existing receivers in the solid
state age use 450KHz anyway). Then just connect it to the existing
radio's IF strip.

More recent equipment is likely to use some other scheme, or use such tiny
and high density components that you can't get anything useable out of it.

Michael VE2BVW

149. Re: Converting FM Transistor radio to 350khz

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-14 02:23:21 UTC
From: Arid ace <nonsmoker@freedom.smokes.oil>
Message-ID: <ah63p81a4u62eteq443shfehmsc2c0g23t@4ax.com>
Source record: 88

On Mon, 13 May 2013 10:53:43 +0100, Camerart <Camerart.bd67228@radiobanter.com>
wrote:

>
>Hi,
>
>I would like to know if it is possible to modify (simply) a transistor
>radio so it can pick up frequencies on other ranges. I particularly
>want 300 to 400 khz FM.
>
>Cheers, Camerart.

An FM radio usually has an IF of 10.7 MHz so in order to use it between 300 and 400 KHz would require to change the value of the LO to a fixed 11.05 or 10.35 MHz, and to change the input circuit to a bandpass for the desired range. Problem is that the LO will be relatively close to the IF and could swamp it, especially when the mixer doesn't suppress the LO (like in a DBM) and the IF filters don't have a good enough stopband rejection. It probably is simpler to use a dedicated FM demodulator IC like (antique) TBA120, CA3089 etc. as their sensitivity will be high enough. At those low frequencies, in principle it is also possible to use the four CMOS EXOR (or even NAND) gates, as preamp, phase detector and VCO, for a comparable sensitivity.

Jan

150. Re: Converting FM Transistor radio to 350khz

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-14 07:23:00 UTC
From: Rob <nomail@example.com>
Message-ID: <slrnkp3pik.ea6.nomail@xs8.xs4all.nl>
Source record: 89

Camerart <Camerart.bd67228@radiobanter.com> wrote:
>
> Hi,
>
> I would like to know if it is possible to modify (simply) a transistor
> radio so it can pick up frequencies on other ranges. I particularly
> want 300 to 400 khz FM.
>
> Cheers, Camerart.

You are sure you didn't mean to write "300 to 400 MHz FM"?

151. Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-14 11:21:31 UTC
From: vu2nan <vu2nan.bd7dfc8@radiobanter.com>
Message-ID: <vu2nan.bd7dfc8@radiobanter.com>
Source record: 90

Please do check this out.

http://tinyurl.com/cccnh6d

Many thanks.

73,

Nandu.

--
vu2nan

152. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-14 12:22:51 UTC
From: Channel Jumper <Channel.Jumper.bd7edd8@radiobanter.com>
Message-ID: <Channel.Jumper.bd7edd8@radiobanter.com>
Source record: 91

vu2nan;804917 Wrote:
> Please do check this out.
>
> http://tinyurl.com/cccnh6d
>
> Many thanks.
>
> 73,
>
> Nandu.

Thanks

That is a real old web site - saw it many times before.

The problem is - not many safety razor blades anymore - other then cardboard cutters or utility knife blades.

With the commercial broadcast bands going digital - it is hard to find a good signal anymore.. Even KDKA is hard to hear at night with the digital signal of another station in about the same exact place.

--
Channel Jumper

153. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-14 13:17:37 UTC
From: vu2nan <vu2nan.bd7fbe8@radiobanter.com>
Message-ID: <vu2nan.bd7fbe8@radiobanter.com>
Source record: 92

Channel Jumper;804920 Wrote:
> Thanks
>
> That is a real old web site - saw it many times before.
>
> The problem is - not many safety razor blades anymore - other then
> cardboard cutters or utility knife blades.
>
> With the commercial broadcast bands going digital - it is hard to find a
> good signal anymore.. Even KDKA is hard to hear at night with the
> digital signal of another station in about the same exact place.

Hi,

You are absolutely correct. The way things are changing, I wonder if
future generations will appreciate old tech!

Thanks.

Regards,

Nandu.

--
vu2nan

154. Re: Converting FM Transistor radio to 350khz

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-14 18:17:16 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1305141416500.21232@darkstar.example.org>
Source record: 97

On Tue, 14 May 2013, Rob wrote:

> Camerart <Camerart.bd67228@radiobanter.com> wrote:
>>
>> Hi,
>>
>> I would like to know if it is possible to modify (simply) a transistor
>> radio so it can pick up frequencies on other ranges. I particularly
>> want 300 to 400 khz FM.
>>
>> Cheers, Camerart.
>
> You are sure you didn't mean to write "300 to 400 MHz FM"?
>
I'm certainly waiting for that clarification.

Michael VE2BVW

155. seeking a good 1.25m repeater

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-15 07:19:07 UTC
From: davidmylastname@acm.org
Message-ID: <kmvctbfng1@frotz.eternal-september.org>
Source record: 98

I'm interested in putting together a 1.25m repeater sometime in the next year and I'm casting about for possible solutions. It seems that I have two routes: 1) modify a GE Mastr II or 2) find a SEA ESP-1000. Using modified GE Mastr IIs is a well-regarded way of doing it, but I am unfamiliar with the SEA ESP-1000. I'm slightly inclined to get one of those because it seems that I can get one all ready to go for slightly more than an unmodified Mastr II AND it's all in a convenient rackmount chassis.

There seems to be a dearth of information on the ESP-1000 though. Can I get some pointers to manuals or whatever else may be helpful?

--
David Griffith
davidmylastname@acm.org <--- Put my last name where it belongs

156. Re: seeking a good 1.25m repeater

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-15 18:40:45 UTC
From: Bruce Gordon <fast@btpost.net>
Message-ID: <fast-5E422F.10404315052013@news.starband.net>
Source record: 100

In article <kmvctbfng1@frotz.eternal-september.org>,
davidmylastname@acm.org (David Griffith) wrote:

> I'm interested in putting together a 1.25m repeater sometime in the next
> year and I'm casting about for possible solutions. It seems that I have
> two routes: 1) modify a GE Mastr II or 2) find a SEA ESP-1000. Using
> modified GE Mastr IIs is a well-regarded way of doing it, but I am
> unfamiliar with the SEA ESP-1000. I'm slightly inclined to get one of
> those because it seems that I can get one all ready to go for slightly
> more than an unmodified Mastr II AND it's all in a convenient rackmount
> chassis.
>
> There seems to be a dearth of information on the ESP-1000 though. Can I
> get some pointers to manuals or whatever else may be helpful?

That is simply because that System caused the SEA Group to be driven
into Bankruptcy, and nearly BROKE the Marine Division for a decade.
They are just now coming out of that slump. There are NO services
available from SEA, for ANY of those Units currently, and it is not
likely that there ever will be in the future. Al the Engineering Talent
has moved on, to other employers, or reTIRED. Just Say'en.. buy a couple
used Kenwood 1.25 Meter Radios and combine them in a Repeater Package.
that is you best bet for a supportable repeater.

--
Bruce in Alaska add path before the @ for email

157. Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-18 09:29:43 UTC
From: vu2nan <vu2nan.bdd09a8@radiobanter.com>
Message-ID: <vu2nan.bdd09a8@radiobanter.com>
Source record: 101

Please do check this out.

http://tinyurl.com/cccnh6d

Many thanks.

73,

Nandu.

--
vu2nan

158. SolderSmoke Podcast for Sunday 19 May 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-05-19 10:07:18 UTC
From: rec-radio-info-request@panix.com
Message-ID: <089e015389264d91ca04dd0f61ed@google.com>
Source record: 102
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

```
SolderSmoke Podcasts

////////////////////////////////////////
SolderSmoke152`

Posted: 18 May 2013 07:30 AM PDT

SolderSmoke issue 152
This posting includes a media file:
http://www.soldersmoke.com/soldersmoke152.mp3
```

159. Crossposting Permitted to rec.radio.amateur.moderated

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-01 06:00:01 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/moderated/crossposting-1-1370066400@panix.com>
Source record: 103
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.amateur.space,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/moderated/crossposting
Revision: 1.2 2011/11/02 04:08:53
Posting-Frequency: posted quarterly
URL: http://www.panix.com/~rram/usenet/rram/index.html

Changes followed by "|".

After a 30-day public discussion and feedback period to gauge reader
opinions in March of 2009:

http://groups.google.com/group/rec.radio.amateur.moderated/browse_thread/thread/d7d337db35
f23326

the rec.radio.amateur.moderated Moderation Team had decided to consider |
amending its charter, and permit limited simultaneous crossposting to
rec.radio.amateur.moderated and one other unmoderated
amateur-radio-related discussion newsgroup. After a successful trial |
period (90 days, through early July 2009), we decided to adopt this |
change permanently. |

Approved rec.radio.amateur.* newsgroups are those that are currently
listed in the latest version of the "List of Big Eight Newsgroups" which
is crossposted monthly to news.announce.newgroups, news.groups, and
news.lists.misc.

Approved alt.radio.amateur.* and alt.ham-radio.* newsgroups are those
that have been created consistent with the suggestions in "So You Want
to Create an Alt Newsgroup" at:

http://www.faqs.org/faqs/alt-creation-guide/

Approved regional hierarchy newsgroups are those that contain either
"radio.amateur" or "ham-radio" in their names, including
uk.radio.amateur and aus.radio.amateur.misc.

We will make every reasonable effort to keep our list of approved
newsgroups up-to-date. In case we have overlooked any, and a submission
is rejected in error as a result, the rejected submitter can E-mail us
at our administrative contact address (in the signature at the bottom of
this article, and the default Reply-To for the rejection message)
requesting that it be added, and that the article be approved. We may
still choose to reject articles crossposted to any alt.* newsgroup with
an inappropriate name, including obscene language, embedded
name-calling, or encouragement of unlawful conduct.
```

Please direct any comments, questions, or criticisms to
rec-radio-amateur-moderated-request@panix.com.

160. Seeking New FAQ/Intro Maintainers for rec.radio.amateur.*

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-07 06:05:01 UTC
From: rram@panix.com
Message-ID: <radio/ham-radio/recruitment-1-1370585100@panix.com>
Source record: 104
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.amateur.policy,rec.radio.info

```
Posted-By: auto-faq 3.3.2 beta (PGPMoose V2.0, Perl 5.005)
Archive-name: radio/ham-radio/recruitment
Revision: 1.2 2009/11/25 14:41:01
Posting-Frequency: posted quarterly
URL: http://www.faqs.org/faqs/radio/personal-intro/

Changes followed by "|".

The rec.radio.info newsgroup, first established in 1993, has been
recently revived by an active moderation team. We are currently seeking
suitable information, FAQ, and bulletin articles from the entire
rec.radio.* newsgroup hierarchy for simultaneous cross-posting to our
newsgroup.

We are seeking a replacement maintainer for the following information
bulletin formerly posted to rec.radio.amateur.* (and currently archived
at http://www.faqs.org/faqs/radio/personal-intro/ ):

radio/personal-intro
Subject: Guide to the rec.radio Newsgroups
Maintainer: jeffreyh@Hawaii.Edu (Jeffrey Herman)
Last Posted: 9 Nov 2001 06:18:17 GMT
Posting-Frequency: 15th of each month

One significant omission, requiring immediate updates, for this article |
is that it does not mention newer amateur radio newsgroups created since |
it was written, including: |

rec.radio.amateur.antenna |
rec.radio.amateur.boatanchors |
rec.radio.amateur.dx |
rec.radio.amateur.equipment |
rec.radio.amateur.homebrew |
rec.radio.amateur.moderated |
rec.radio.amateur.space |

We are willing to provide any technical support necessary to get this
article updated and automatically posted again at a regular interval.
This would include establishing contact with the original maintainer for
any necessary permissions. We would prefer to seek a new, dedicated
maintainer at this time, rather than start auto-posting the original
article ourselves.

For more information about our newsgroup, see:
```

http://www.panix.com/~rram/usenet/rri/index.html

Please direct any comments, questions, or criticisms to
rec-radio-info-request@panix.com.

161. AmateurLogic.TV for Thursday 13 June 2013

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-13 04:24:01 UTC
From: rec-radio-info-request@panix.com
Message-ID: <001a11c1dadcb3847604df017f1c@google.com>
Source record: 105
Cross-posted to: rec.radio.amateur.misc,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.info

AmateurLogic.TV

//
AmateurLogic.TV Episode 55

Posted: 12 Jun 2013 03:00 AM PDT
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic55_hi.wmv

Join Tommy and George as they relive their Excellent Adventure to Dayton Hamvention 2013. See what goodies we

brought home, George’s award, visit with Midnight Science, Joe Eisenberg K0NEB, Bob Heil K9EID, Ray Novak N9JA, and

more.

We also announce the very lucky winner of the Field Day Giveaway contest who’s receiving the Icom IC-7200 plus a

custom shop paint job and accessories from GigaParts, MFJ, and Heil Sound.

1:12:02 of Hamvention fun.
This posting includes a media file:
http://www.podtrac.com/pts/redirect.wmv/www.amateurlogic.tv/transmitter/video/amlogic55_hi.wmv

162. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-15 16:07:29 UTC
From: philo <philo@privacy.net>
Message-ID: <kpi36rciq1@dont-email.me>
Source record: 106

On 5/18/2013 4:29 AM, vu2nan wrote:
> Please do check this out.
>
> http://tinyurl.com/cccnh6d
>
> Many thanks.
>
> 73,
>
> Nandu.
>
>
>
>

I recall, as a kid building a crystal set with my father.
we used a razor blade and a piece of pencil graphite, but never got it
to work.

Later, with a "crystal diode"...it worked.

That was in 1957 and I still have the roll of wire were used to wind the
coil

163. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-15 19:55:09 UTC
From: philo <philo@privacy.net>
Message-ID: <kpighn$m10$1@dont-email.me>
Source record: 107

On 05/14/2013 08:17 AM, vu2nan wrote:
> Channel Jumper;804920 Wrote:
>> Thanks
>>
>> That is a real old web site - saw it many times before.
>>
>> The problem is - not many safety razor blades anymore - other then
>> cardboard cutters or utility knife blades.
>>
>> With the commercial broadcast bands going digital - it is hard to find a
>> good signal anymore.. Even KDKA is hard to hear at night with the
>> digital signal of another station in about the same exact place.
>
> Hi,
>
> You are absolutely correct. The way things are changing, I wonder if
> future generations will appreciate old tech!
>
> Thanks.
>
> Regards,
>
> Nandu.
>
>
>
>

I found this

http://www.midnightscience.com/

So I guess there is still interest.

I am disappointed how there are so few good radio stations
but am very glad there is still NPR.

164. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-15 22:22:52 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <CLWdnZSI_PShdCHMnZ2dnUVZ_qudnZ2d@earthlink.com>
Source record: 108

"Channel Jumper" <Channel.Jumper.bd7edd8@radiobanter.com> wrote in message
news:Channel.Jumper.bd7edd8@radiobanter.com...
>
>>
> The problem is - not many safety razor blades anymore - other then
> cardboard cutters or utility knife blades.
>
> With the commercial broadcast bands going digital - it is hard to find a
> good signal anymore.. Even KDKA is hard to hear at night with the
> digital signal of another station in about the same exact place.
>
>
The real problem is the blades needed to be the Blue Blades. The other ones
did not work well if at all. The blue was not paint, but some form of
coating on the blades that kept them from rusting. I am not sure if it is
similar to the blueing on guns or not.

165. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-15 23:41:38 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1306151936590.13067@darkstar.example.org>
Source record: 109

On Sat, 15 Jun 2013, philo wrote:

> On 5/18/2013 4:29 AM, vu2nan wrote:
>> Please do check this out.
>>
>> http://tinyurl.com/cccnh6d
>>
>> Many thanks.
>>
>> 73,
>>
>> Nandu.
>>
>>
>>
>>
>
>
>
> I recall, as a kid building a crystal set with my father.
> we used a razor blade and a piece of pencil graphite, but never got it to
> work.
>
> Later, with a "crystal diode"...it worked.
>
>
> That was in 1957 and I still have the roll of wire were used to wind the
> coil
>
I guess my childhood was more upscale. I remember having a tiny box that was a crystal radio, complete with tuning dial. Maybe three inches long, two inches wide? SOmething like that. It was a commercial product. I have no idea if it was given to me, or I kind of used it because my father had it. I can't even remember if it worked, I vague remember something about clipping it to some metal frame, it had an alligator clip or two. That had to be the early sixties.

Then in the early seventies, I had one of those plastic crystal radios, a famous brand that doens't come to mind right now. A plastic case with a slider for tuning, it had a piece of plastic in a circule, kid of like an antenna, and I think the whole thing was blue. Only one earphoe, but soe metal to hold it onto your head. That worked, though I can't remember the antenna, and I seem to recall multiple stations at the same time, so not much selectivity. I can't remember if that was a kit or not.

Michael VE2BVW

166. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 05:51:04 UTC
From: coffelt2 <coffelt2@comcast.net>
Message-ID: <AcqdnWh8favXzyDMnZ2dnUVZ5g2dnZ2d@giganews.com>
Source record: 110

> I am disappointed how there are so few good radio stations
> but am very glad there is still NPR.

NPR is pretty interesting, but a mite too liberal for my standards,
what I crave is some good old "Wolfman Jack" or even back a bit
more, "Innersanctem" {sp?} and the squeaking door! XERF DelRio?

Old Chief Lynn

167. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 12:13:20 UTC
From: philo <philo@privacy.net>
Message-ID: <kpk9ro$7sn$1@dont-email.me>
Source record: 111

On 06/15/2013 06:41 PM, Michael Black wrote:

<snip>
>> That was in 1957 and I still have the roll of wire were used to wind
>> the coil
>>
> I guess my childhood was more upscale. I remember having a tiny box
> that was a crystal radio, complete with tuning dial. Maybe three inches
> long, two inches wide? SOmething like that. It was a commercial
> product. I have no idea if it was given to me, or I kind of used it
> because my father had it. I can't even remember if it worked, I vague
> remember something about clipping it to some metal frame, it had an
> alligator clip or two.
> That had to be the early sixties.
>
> Then in the early seventies, I had one of those plastic crystal radios,
> a famous brand that doens't come to mind right now. A plastic case with
> a slider for tuning, it had a piece of plastic in a circule, kid of like
> an antenna, and I think the whole thing was blue. Only one earphoe, but
> soe metal to hold it onto your head. That worked, though I can't
> remember the antenna, and I seem to recall multiple stations at the same
> time, so not much selectivity. I can't remember if that was a kit or not.
>
> Michael VE2BVW
>
>

Yep.When I was a tad older I got, as a gift, one of those plastic
crystal radio kits, it was yellow.

The kid next door had one but his was "louder" than mine.

We experimented by swapping them and determining that it was not the
antenna, then we exchanged diodes and it turned out his diode was more
sensitive than mine.

A few years later I put one one stage transistor amplifier in it
and one of my friends wanted it so badly that I ended up swapping him
the radio for a huge box of parts.

168. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 12:16:55 UTC
From: philo <philo@privacy.net>
Message-ID: <kpka2e$7sn$2@dont-email.me>
Source record: 112

On 06/16/2013 12:51 AM, coffelt2 wrote:
>> I am disappointed how there are so few good radio stations
>> but am very glad there is still NPR.
>
> NPR is pretty interesting, but a mite too liberal for my standards,
> what I crave is some good old "Wolfman Jack" or even back a bit
> more, "Innersanctem" {sp?} and the squeaking door! XERF DelRio?
>
> Old Chief Lynn
>

Still plenty of stations that rebroadcast the old programs,
but there is still nothing like live radio.

As to NPR and liberalism...they have /many/ good programs that have
nothing to do politics of any sort.

I love this one

http://www.waywordradio.org/

169. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 16:50:39 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1306161245300.14205@darkstar.example.org>
Source record: 113

On Sun, 16 Jun 2013, philo wrote:

> On 06/16/2013 12:51 AM, coffelt2 wrote:
>>> I am disappointed how there are so few good radio stations
>>> but am very glad there is still NPR.
>>
>> NPR is pretty interesting, but a mite too liberal for my standards,
>> what I crave is some good old "Wolfman Jack" or even back a bit
>> more, "Innersanctem" {sp?} and the squeaking door! XERF DelRio?
>>
>> Old Chief Lynn
>>
>
>
>
> Still plenty of stations that rebroadcast the old programs,
> but there is still nothing like live radio.
>
> As to NPR and liberalism...they have /many/ good programs that have nothing
> to do politics of any sort.
>
>
> I love this one
>
> http://www.waywordradio.org/
>
The sad part about the AM band is that at night when you can move out of the local, so much of it is syndicated, and usually the same show or two. The local stations love it, filler for a time when audience is down, but no thrill when tuning the band. There was a local station carrying "Coast to COast" and every time it looked like the station was going to fail, everyone would say "but what about Coast to Coast?" as if they couldn't get the program so easily up and down the dial. And when that station did finally die, another station grabbed it right away. Sad, that station used to have local programming overnight.

For about a decade, I'd listen to WBZ out of Baston overnight if the local overnight programming wasn't interesting that night, and the overnight syndicated programming wasn't interesting. WBZ has a good reach overnight, and except for the fading, might as well be local then. And they know it, so they keep local programming (though often the guests and calls are not just about Boston) and basically invite callers from all over.

Reception got sporadic when a local station started up at 1040, just above WBZ.

And I'm finding I'm not listening to much radio late at night.

Michael VE2BVW

170. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 18:18:54 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <WvudnVwC5skSnCPMnZ2dnUVZ_rqdnZ2d@earthlink.com>
Source record: 114

"Channel Jumper" <Channel.Jumper.bd7edd8@radiobanter.com> wrote in message
news:Channel.Jumper.bd7edd8@radiobanter.com...
>
> vu2nan;804917 Wrote:
>> Please do check this out.
>>
>> http://tinyurl.com/cccnh6d
>>
>> Many thanks.
>>
>> 73,
>>
>> Nandu.
>
>
> Thanks
>
> That is a real old web site - saw it many times before.
>
> The problem is - not many safety razor blades anymore - other then
> cardboard cutters or utility knife blades.
>

The real problem is the razor blade had to be a "Blue Blade". I think they
were only made by Gillette. This was not a paint, but some form of coating
on the blade. Not sure if it was similar to the blueing on guns or not.

171. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 18:32:40 UTC
From: philo <philo@privacy.net>
Message-ID: <kpl02vtrt1@dont-email.me>
Source record: 115

On 06/16/2013 11:50 AM, Michael Black wrote:
>

<snip>
>>
> The sad part about the AM band is that at night when you can move out of
> the local, so much of it is syndicated, and usually the same show or two.
> The local stations love it, filler for a time when audience is down, but
> no thrill when tuning the band. There was a local station carrying
> "Coast to COast" and every time it looked like the station was going to
> fail, everyone would say "but what about Coast to Coast?" as if they
> couldn't get the program so easily up and down the dial. And when that
> station did finally die, another station grabbed it right away. Sad,
> that station used to have local programming overnight.
>
> For about a decade, I'd listen to WBZ out of Baston overnight if the
> local overnight programming wasn't interesting that night, and the
> overnight syndicated programming wasn't interesting. WBZ has a good
> reach overnight, and except for the fading, might as well be local
> then. And they know it, so they keep local programming (though often
> the guests and calls are not just about Boston) and basically invite
> callers from all over.
>
> Reception got sporadic when a local station started up at 1040, just
> above WBZ.
>
> And I'm finding I'm not listening to much radio late at night.
>
> Michael VE2BVW

I'm retired now, but when I was working I'd spend many hours a day
driving and radio was very important to me. When radio pretty much died
I stocked up on CD's but that was hardly the same...it got boring pretty
fast.

Now, I find myself listening to a few hours of NPR on weekends
and that's about it.

BTW: I am also a ham radio operator, but am no longer active.
I actually prefer Usenet.

172. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 18:34:07 UTC
From: philo <philo@privacy.net>
Message-ID: <kpl05ltrt2@dont-email.me>
Source record: 116

```
On 06/16/2013 01:18 PM, Ralph Mowery wrote:
>
> "Channel Jumper" <Channel.Jumper.bd7edd8@radiobanter.com> wrote in message
> news:Channel.Jumper.bd7edd8@radiobanter.com...
>>
>> vu2nan;804917 Wrote:
>>> Please do check this out.
>>>
>>> http://tinyurl.com/cccnh6d
>>>
>>> Many thanks.
>>>
>>> 73,
>>>
>>> Nandu.
>>
>>
>> Thanks
>>
>> That is a real old web site - saw it many times before.
>>
>> The problem is - not many safety razor blades anymore - other then
>> cardboard cutters or utility knife blades.
>>
>
> The real problem is the razor blade had to be a "Blue Blade". I think they
> were only made by Gillette. This was not a paint, but some form of coating
> on the blade. Not sure if it was similar to the blueing on guns or not.
>
>

When my dad and I built the never-to-work crystal set, the plans said
not to use a blue-blade. OTOH, we did try it after the regular razor did
not work.
```

173. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 21:19:57 UTC
From: Jim Mueller <wrongname@nospam.com>
Message-ID: <51be2bfd$0$40764$c3e8da3$3304c218@news.astraweb.com>
Source record: 117

On Sun, 16 Jun 2013 14:18:54 -0400, Ralph Mowery wrote:

> "Channel Jumper" <Channel.Jumper.bd7edd8@radiobanter.com> wrote in
> message news:Channel.Jumper.bd7edd8@radiobanter.com...
>>
>> vu2nan;804917 Wrote:
>>> Please do check this out.
>>>
>>> http://tinyurl.com/cccnh6d
>>>
>>> Many thanks.
>>>
>>> 73,
>>>
>>> Nandu.
>>
>>
>> Thanks
>>
>> That is a real old web site - saw it many times before.
>>
>> The problem is - not many safety razor blades anymore - other then
>> cardboard cutters or utility knife blades.
>>
>>
> The real problem is the razor blade had to be a "Blue Blade". I think
> they were only made by Gillette. This was not a paint, but some form of
> coating on the blade. Not sure if it was similar to the blueing on guns
> or not.

Gun blueing is available at sporting goods and gun stores. Try it and
see if it works. Then tell us all.

--
Jim Mueller wrongname@nospam.com

To get my real email address, replace wrongname with dadoheadman.
Then replace nospam with fastmail. Lastly, replace com with us.

174. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-16 22:10:08 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <D5KdnaaG2vddqiPMnZ2dnUVZ_hSdnZ2d@earthlink.com>
Source record: 118

"Jim Mueller" <wrongname@nospam.com> wrote in message
news:51be2bfd$0$40764$c3e8da3$3304c218@news.astraweb.com...
> Gun blueing is available at sporting goods and gun stores. Try it and
> see if it works. Then tell us all.
>
> --

There are atleast two kinds. One is the cold blueing that is just brushed on and wiped off. Not too much trouble, but the process I was thinking of is the hot blueing that is lots of trouble. Both are not worth my time or money to try just for a one time deal. Also I do not have any high impedance ear phones..hihi.

175. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-17 06:08:41 UTC
From: coffelt2 <coffelt2@comcast.net>
Message-ID: <tOSdnZi6LOt2OiPMnZ2dnUVZ5h-dnZ2d@giganews.com>
Source record: 119

"philo " <philo@privacy.net> wrote in message
news:kpk9ro$7sn$1@dont-email.me...
> On 06/15/2013 06:41 PM, Michael Black wrote:
>
>
> <snip>
>>> That was in 1957 and I still have the roll of wire were used to wind
>>> the coil
>>>
<snipped to bits>
> We experimented by swapping them and determining that it was not the
> antenna, then we exchanged diodes and it turned out his diode was more
> sensitive than mine.
>
> A few years later I put one one stage transistor amplifier in it
> and one of my friends wanted it so badly that I ended up swapping him the
> radio for a huge box of parts.

My "foxhole" radio never did perform, but our nearest 500 watt station
was 30 miles away.
The "Technical experts" writing of the day explained that the sensitive spot
on the blue blade
was the fine line where the blue coating met the sharpened edge, where there
was no blue.
Some think that since the bare sharpened edge tended to rust, there could
have been a
crude junction of sort where the beginning of rust interacted chemically
with something in the
blue substance. Wada U think?
Later in life, maybe 1958 or so, Tucson Radio Supply had CK722's for
less than $15. I
sprung for one, and tried the "Foxhole" thing again. Hey, it received
several stations, one on
top of the other. You could see several AM towers nearby. Discovered that
you didn't need
any razor blade at all. Just touching two slightly corroded copper wires
together did the same
thing. All H*** broke loose when the price of surplus 1N23's got less than
$2. Then selectivity
became an issue.

Old Chief Lynn, W7LTQ since 1948 (CW every month or so)

176. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-17 10:19:04 UTC
From: "Geoffrey S. Mendelson" <gsm@mendelson.com>
Message-ID: <slrnkrtoio.ibg.gsm@cable.mendelson.com>
Source record: 120

coffelt2 wrote:
>
> My "foxhole" radio never did perform, but our nearest 500 watt station
> was 30 miles away.
> The "Technical experts" writing of the day explained that the sensitive spot
> on the blue blade
> was the fine line where the blue coating met the sharpened edge, where there
> was no blue.
> Some think that since the bare sharpened edge tended to rust, there could
> have been a
> crude junction of sort where the beginning of rust interacted chemically
> with something in the
> blue substance. Wada U think?

It may also have been impurities in the blade that caused it to work.

While cleaning out things, I found some FAN brand blued steel blades,
purchased by a late friend in the 1970's.

Maybe someday I will find someone local to me (Jerusalem) that wants
to try them. :-)

73,

Geoff.

--
Geoffrey S. Mendelson, N3OWJ/4X1GM/KBUH7245/KBUW5379
It's Spring here in Jerusalem!!!

177. Re: Foxhole Radio detector variant

Newsgroup: rec.radio.amateur.homebrew
Date: 2013-06-17 14:48:06 UTC
From: Michael Black <et472@ncf.ca>
Message-ID: <alpine.LNX.2.02.1306171045420.16080@darkstar.example.org>
Source record: 121

On Mon, 17 Jun 2013, Geoffrey S. Mendelson wrote:

> coffelt2 wrote:
>>
>> My "foxhole" radio never did perform, but our nearest 500 watt station
>> was 30 miles away.
>> The "Technical experts" writing of the day explained that the sensitive spot
>> on the blue blade
>> was the fine line where the blue coating met the sharpened edge, where there
>> was no blue.
>> Some think that since the bare sharpened edge tended to rust, there could
>> have been a
>> crude junction of sort where the beginning of rust interacted chemically
>> with something in the
>> blue substance. Wada U think?
>
> It may also have been impurities in the blade that caused it to work.
>
> While cleaning out things, I found some FAN brand blued steel blades,
> purchased by a late friend in the 1970's.
>
> Maybe someday I will find someone local to me (Jerusalem) that wants
> to try them. :-)
>
I suspect there are still plenty of those Blue Blade razors at the back of
medecine closets. Just pushed back as new things come in. Or maybe the
time is passed, the blades have finally been tossed out "nobody will ever
use these".

Kind of like old radios, a period when they are common but nobody wants
them, then later they are desired, but attrition has reduced the numbers.

Michael VE2BVW